CHAPTER 5

MANPOWER

INTRODUCTION

1 - On the basis of the principle that a clear-cut manpower policy is indispensable for systematic and sustained economic growth, the various consequences and implications emanating from the annual increase in Gross National Product and the productive objectives of various sectors envisaged for the Fourth Plan have been studied with regard to present manpower problems and those anticipated during the Plan and the policies necessary for the realization of the objectives of the Plan as regards employment and the establishment of a balance between the supply and demand for specialized manpower at various levels of skill have therefore been suggested.

2 - Changes in population and employment over the past decade have been examined in Chapter One while Chapter Three has analysed employment as a basic objective of the Fourth Plan and as a major factor in the more equitable distribution of income. In the present Chapter, after a review of population trends which is essential to any review of employment in the Fourth Plan, and after the population policies have been outlined, employment in the Fourth Plan and policies relating to employment will be examined. Finally problems relating to the supply of and demand for specialized skills in the major economic sectors will be discussed together with the relevant policies to be followed during the Fourth Plan.

A REVIEW OF THE POPULATION DURING THE FOURTH PLAN

3 - The annual rate of increase in the population of Iran during the Fourth Plan is expected to be about 2.6 per cent, but the rate of increase in urban areas, which is about 4.4 per cent, is greater than that of rural areas, which is only about 1.4 per cent. Table 1 shows trends in population growth by urban and rural districts during the Fourth Plan period.

4 - There has been an appreciable trend towards a lowering of the median age of the population in recent years.

During the Fourth Plan period, this trend will continue especially in the 0-20 age group.

If 12 and 64 years are taken as the lower and upper working age limits respectively, the change in the composition of the main age groups of the population of Iran during the Plan period will be as shown in Table 2.

TABLE 1 — INCREASES IN POPULATION DURING THE FOURTH PLAN PERIOD BY URBAN AND RURAL AREAS

	1346	Per cent	1351	Per cent	Increase during the Plan period	Percentage increase
Total Population	26,676,000	100	30,329,000	100	3,653,000	14
Urban Population	10,401,000	39	12,900,000	43	2,499,000	24
Rural Population	16,275,000	61	17,429,000	57	1,154,000	7

TABLE 2 — FORECASTS OF TRENDS IN THE THREE MAIN AGE-GROUPS OF THE POPULATION OF IRAN DURING THE FOURTH PLAN PERIOD (THOUSANDS OF PERSONS)

	1346			1351			Increase during Plan period		
	Urban areas	Rural areas	Country total	Urban areas	Rural areas	Country total	Urban areas	Rural areas	Country total
Children (0-11 yrs.)	4,035	6,689	10,724	5,029	7,163	12,192	994	474	1,468
Population of working age (12-64 yrs.)	6,005	8,854	14,859	7,412	9,482	16,894	1,407	628	2,035
65 yrs. and over	361	732	1,093	459	784	1,243	98	52	150
Total	10,401	16,275	26,676	12,900	17,429	30,329	2,499	1,154	3,653

5 - The principal movement of the population in Iran in the past decade has been in two main directions:

a. Migration from rural to urban areas, constituting about 44 per cent of total migration;

b. Migration from one urban area to another, which forms about 54 per cent of total migration.

In addition to these two types of migration, there has been an estimated 1.2 per cent to 2 per cent migration from abroad to Iran and from Iran abroad. According to recent research on this subject, the major causes of migration within Iran have been: seeking better work (39 per cent), seeking work (17 per cent), studying (2 per cent), other reasons such as marriage, following the family, transfer and so on (42 per cent).

A low level of income has motivated people to seek better jobs and this contributed to internal migration more than any other factor - including absolute unemployment.

POPULATION POLICY

6 - In view of various problems arising from the natural increase and the disproportionate geographic distribution of the population and the fact that each of these factors will have a decisive effect on the economic growth of the country, the adoption of a specific population policy seems vitally important.

As the adoption of such a policy requires accurate and complete knowledge both of the demographic characteristics of the nation and of all natural resources as well as of the potential for economic and social development of the country, and since at the present time sufficient knowledge of these factors is not available, it seems essential to carry out the following policies during the Fourth Plan in order to draw up a long-term population policy and quicken the pace of economic development.

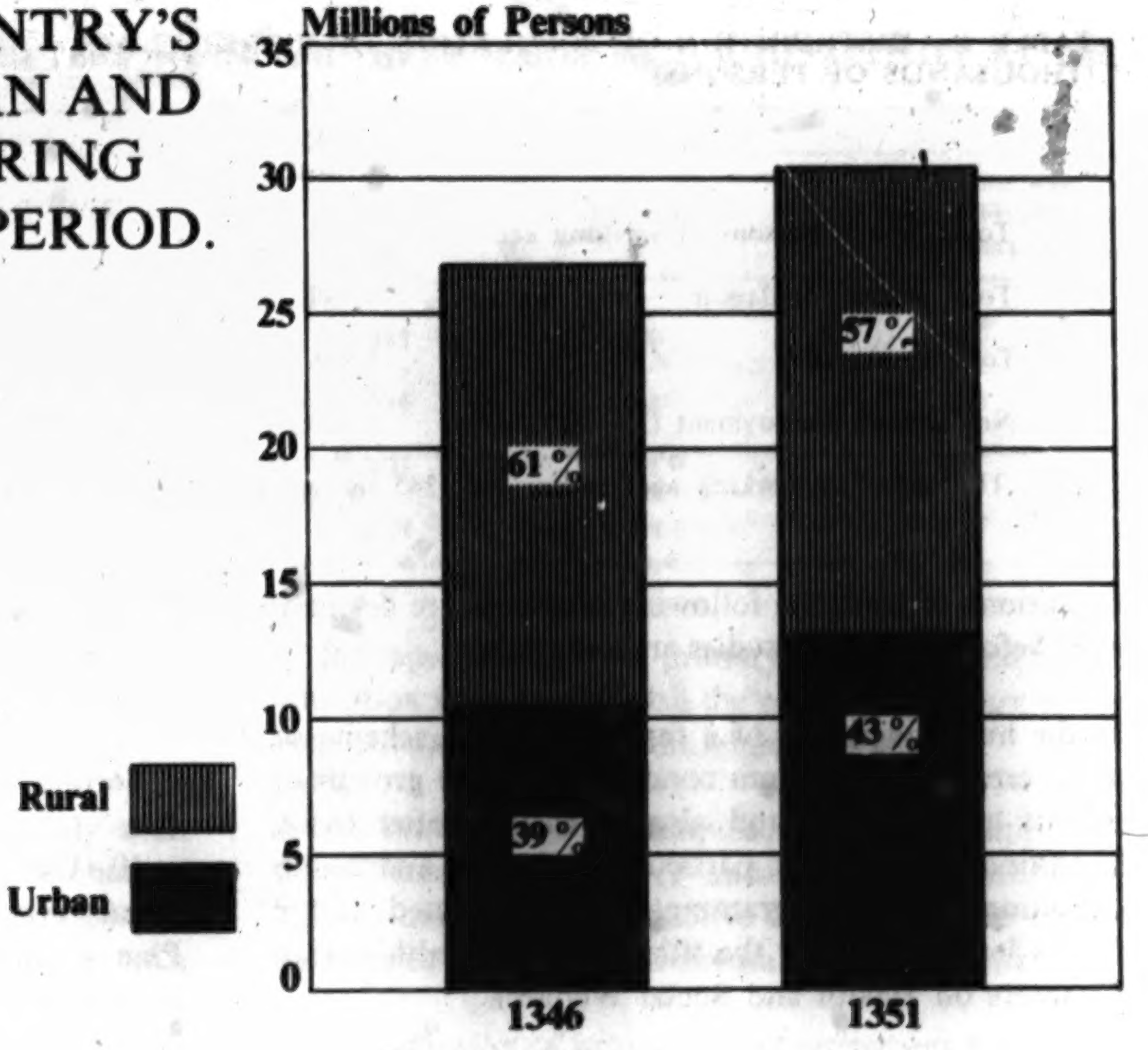
a. the fundamental review of the country's civil registration organization with a view to enabling it to carry out an accurate recording of births and deaths, and the regular publication of vital statistics which will be the most reliable source of information for estimating the natural growth of population.

b. the carrying out of demographic surveys and research with specific programmes and objectives in order to assess quantitative and qualitative changes in the population on a country-wide as well as on a regional basis.

c. the completion of the evaluation of the country's natural resources (water, arable areas, mineral resources, fuel and power resources, food and marine resources and so on) by means of executive agencies, within the framework of a specific programme.

7 - In the light of the present social and economic

CHANGES IN THE COUNTRY'S POPULATION BY URBAN AND RURAL REGIONS DURING THE FOURTH PLAN PERIOD.



FORECAST OF VARIOUS POPULATION GROUPS 1346-1351

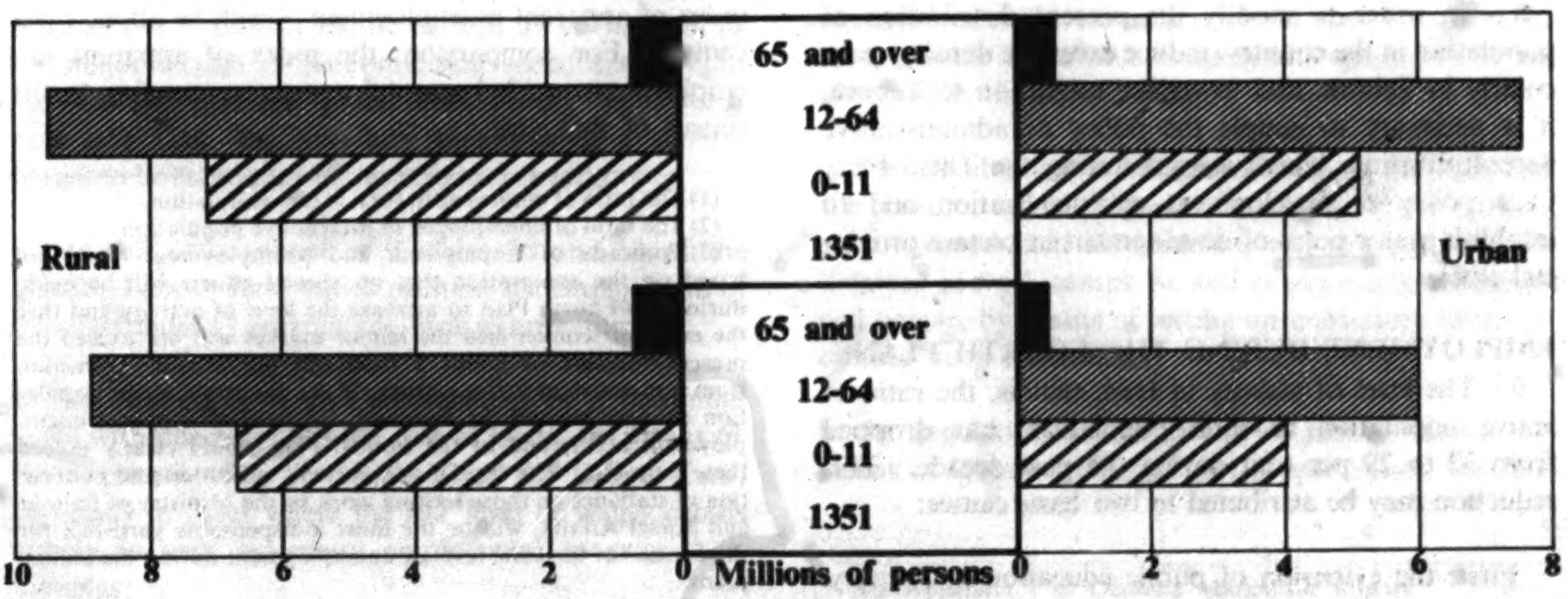


TABLE 3 — DISTRIBUTION OF POPULATION OF WORKING AGE (THOUSANDS OF PERSONS)

		1345 (census)	1346 (estimated)	1351 (forecast)
1.	Total No. of persons of working age	16,551	14,859	16,894
2.	Total active population	7,194	7,052	7,959
3.	Total employed	6,866	6,932	7,898
4.	No. seeking employment (2 — 3)	328	120	61

Note: The term "of working age" means for 1345 the age-group over 10 years old and for 1346 the 12-64 age-group.

conditions of Iran, the following measures are essential even before the above studies are undertaken:

a. the implementation of a family planning scheme so as to create the optimum conditions for the growth of infants and children and also to ensure better living conditions for mothers, particularly physical and health conditions. This programme will be executed at the family level and under the title "Family Health". (See Chapters on Health and Social Welfare).

b. the establishment of relative equilibrium of the lower age-groups in the population during the Fourth Plan period by means of the strict enforcement of Article 1041 of the Civil Law concerning the prohibition of marriage for women under 16 years of age.

8 - In order to modify the present distribution of population in the country, reduce excessive density, particularly in Tehran, and to reduce migration to Tehran, it is necessary to couple the policy of administrative decentralization, which started during the Third Plan, to a policy of development decentralization and to establish major poles of development in certain provincial cities.

EMPLOYMENT DURING THE FOURTH PLAN

9 - The level of activity in Iran, that is, the ratio of active population to total population, has dropped from 32 to 29 per cent during the past decade. This reduction may be attributed to two basic causes:

First, the extension of public education at primary, secondary and university level has resulted in a considerable segment of the active age-group being added to the student category.

Second, the relative decline in the 20-64 age-group.

10 - On the basis of the calculations made within the framework of the production objectives of the Fourth Plan, it is forecast that by the end of the Plan period, out of a total number of 16,894,000 persons of working age, 8,935,000 will be non-active, and 7,959,000 will be active. It is also forecast that for the latter there will be 7,898,000 job opportunities and about 61,000 persons will be seeking work. Therefore, if all the basic objectives of the Plan are realized in accordance with the increases forecast, by the end of the Plan period the employment index (1) will be about 99 per cent and the index of apparent unemployment (2) will be about 1 per cent (3). For comparison, the index of apparent unemployment in 1345 was 4.5 per cent according to the census of that year.

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(1) The ratio of employed to total active population.

(2) The ratio of unemployed to total active population.

(3) Forecasts of employment and unemployment ratios are based on the assumption that no special efforts will be made during the Fourth Plan to increase the level of activity and that the entry of women into the labour market will not exceed the present forecast of about 5 thousand per annum (transition from non-active to active status). If the country's active population changes beyond the forecasts, the level of apparent unemployment at the end of the Fourth Plan would clearly exceed these estimates. The regular and periodic collection and publication of statistics on those seeking work by the Ministry of Labour and Social Affairs, will be the most indispensable yardstick for the control of the total level of unemployment during the annual plans.

TABLE 4 — DISTRIBUTION OF EMPLOYED PERSONS IN THE THREE MAJOR SECTOR OF ACTIVITY AT THE END OF THE THIRD AND FOURTH PLANS
(THOUSANDS OF PERSONS)

Sector	1346	Per cent	1351	Per cent	Absolute increase during Fourth Plan period
All sectors	6,932	100	7,898	100	966
Agriculture	3,372	49	3,598	46	226
Industry and mining	1,686	24	2,103	26	417
Services	1,874	27	2,197	28	323

11 - Forecasts of the distribution of employed persons by the three major sectors of activity during the Fourth Plan period are summarized in Table 4.

As the above table shows and as has already been noted in connection with the figures relating to changes in the past decade, the decline in the ratio of employed persons in the agriculture sector will continue with greater impetus during the Fourth Plan period, and, by contrast, the ratio of employed persons in other sectors especially in the industry and mining sector, will rapidly increase.

EMPLOYMENT POLICY IN THE FOURTH PLAN

12 - The attainment of the employment objectives of the Fourth Plan calls for the adoption of a number of measures of a general nature as well as at the level of the major sectors of economic and social activity. In view of the practical possibilities during the Fourth Five-year Plan, the necessary measures of a general nature to be taken may be summarized as follows:

a. the full enforcement of Articles 16 and 59 of the existing Labour Law, which prohibit the employment of children under 12 years of age, even as apprentices;

b. the establishment and enforcement of a minimum wage with due regard to the cost of living, by means of the implementation of Article 22 of the Labour Law, especially in cases where the low level of wages causes people to seek secondary employment to raise their earnings;

c. the rapid extension of primary, secondary and higher education so as to diminish the potential pressure of the respective age groups on the labour market;

d. the introduction of compulsory apprenticeship contracts* between employers and young apprentices in various branches of productive activity so as to enable industry to absorb more elementary school-leavers;

e. the extension of insurance and retirement benefits to the private sector so as to reduce the pressure of job-seekers in the public sector and to increase the turnover of employees in productive organizations in the private sector;

f. the introduction of courses of specialized vocational education and the secondary school level at above so as to enable more secondary school graduates to be absorbed by the private sector;

g. the introduction of vocational training schemes and the creation of employment opportunities for specific social groups such as prisoners, vagrants and beggars detained in work camps, as well as physically handicapped people, by means of setting up workshops inside or outside these institutions;

h. the regulation of the country's labour market by means of labour exchanges and proper liaison between

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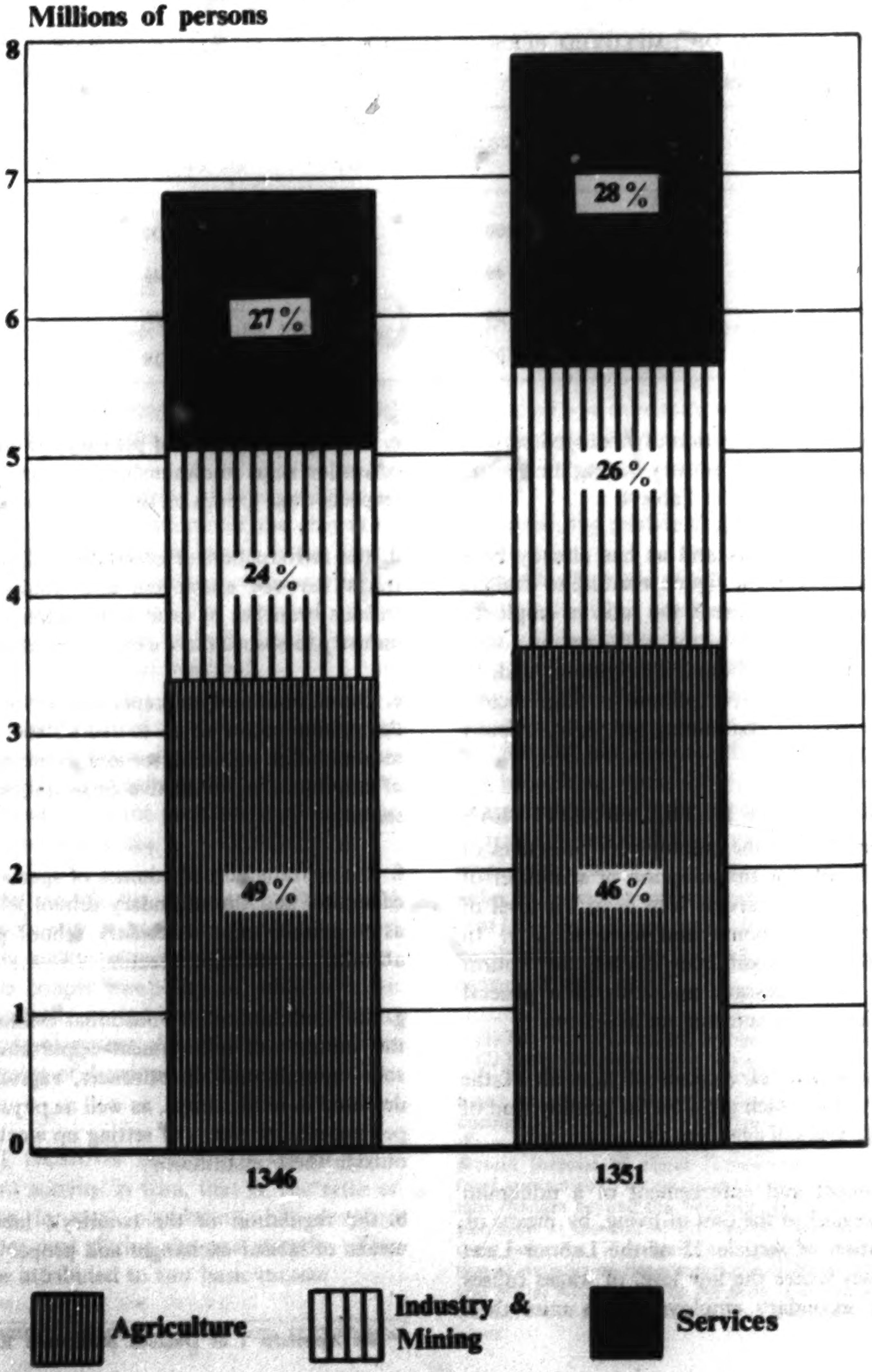
* See Appendix 1 of Detailed Manpower Report.

FORECAST OF DISTRIBUTION OF EMPLOYED PERSONNEL IN THREE MAJOR ACTIVITY SECTORS AT THE END OF THE THIRD AND FOURTH PLANS



these exchanges, adult vocational training schemes and the Social Insurance Department of the Ministry of Labour and Social Affairs, specially for the purpose of controlling local and seasonal unemployment;

i. the preparation by the Ministry of Labour and Social Affairs of regular, short-term statistical series on changes in the labour-force, the labour market, wages and productivity to provide a statistical basis for the adoption of sound policies in these fields.

13 - The employment policy in the agriculture sector, in addition to providing 226 thousand new jobs, will consist of reducing under-employment in this sector from the present estimate of 37 per cent to about 21 per cent by the end of the Fourth Plan by the following means:

a. the diversification of rural and agricultural activities through the further extension of animal husbandry, food processing and agriculture-based industries.

b. the creation of large-scale, mixed agricultural-industrial units by means of granting long-term agricultural loans and the adoption of special taxation measures especially in the case of land irrigated by large dams.

c. the conversion of existing rural co-operatives into agricultural production co-operatives in order to increase employment opportunities in small and medium-sized holdings particularly by means of intensive cultivation, and other supplementary operations connected with agriculture, irrigation and animal husbandry.

d. the promotion of agricultural extension and training, especially by the implementation of large-scale on-the-job training programmes so as familiarize farmers as much as possible with modern techniques and methods of production, irrigation, plant protection and animal husbandry.

14 - In the industry and mining sector the following measures are essential if the maximum production employment with due regard for the country's present investment potential is to be ensured:

a. encouraging employment-generating effects in the industrial sector through the creation and protection of small and medium-sized labour-intensive establishments around large industries so that these establishments may manufacture some of the components required for the products of large factories or convert some of the semi-finished products of the large factories into finished ones;

b. strengthening and protecting small and medium-sized labour-intensive industrial establishments by centralizing the main branches of such industries within co-operative systems and specialized professional organizations, in order to enable them to make better use of the techniques of industrial management and technical and financial services provided by Government and private agencies;

c. endeavouring to standardize the products of such establishments;

d. guiding such establishments towards specialized production so as to protect the small and medium-sized labour-intensive establishments against expensive and destructive competition;

e. preventing excessive mechanization of existing labour-intensive conventional industries in which the raising of labour productivity is not essential;

f. reviving and expanding handicraft industries especially in rural areas, while harmonizing them with the requirements of new domestic and foreign markets;

g. taking into consideration the employment effects of industrial projects as a criterion of relative priority at the time of issuing permits for the establishment of new industries.

15 - In the field of Government services the most important measures affecting employment are the decentralization of Government employees in certain areas including the city of Tehran, increasing the percentage of educated personnel in the public sector, raising the level of education and specialized skills among employees, and lastly changing the composition of

Government employees by boosting the ratio of technical staff to servants and administrative personnel.

SKILLS REQUIRED IN FOURTH PLAN AND EXECUTIVE POLICIES INVOLVED

16 - The country's needs for technical personnel during the Fourth Plan have been forecast in the following sections by establishing a reasonable relation between fixed investment and employment in various productive sectors of the economy as well as by allowing for any foreseeable changes in labour productivity.

a. Agriculture

17 - In view of the basic objectives of the Agriculture and Animal Husbandry Plan and the Water Resources Plan, within the framework of the Fourth Development Plan, the number of specialized employees needed by the public and private sectors in agriculture and affiliated industries is estimated to be as shown in Table 5:

18 - Due to the special form of agricultural production in Iran, the small size of productive units, poor management and the lack of co-ordination between existing agricultural training schemes and the conditions and requirements peculiar to Iran's agricultural economy, the private sector has not yet made effective use of agricultural school graduates. On the other hand, Government organizations which are the main employers of these graduates have for various reasons employed such people in fields other than those in which they have specialized. Therefore, in addition to transforming the nature of agricultural production and creating large production units, one of the essential ways of achieving the objectives of the Agriculture Plan should be the establishing of necessary conditions for the greater use of agricultural school graduates.

19 - As great importance has been attached in the Fourth Plan to training of farmers, the basic policies in this respect consist of making the maximum use of all existing agricultural training and extension centres, development units and other institutions concerned with agriculture. In this way it is envisaged that altogether 50 thousand farmers can be trained in these units. However, for the training of the remainder required, estimated at about 220 thousand farmers, since the time needed to make use of new training centres is long it will be necessary to extend agricultural training to soldiers and conscripts in rural districts who are exempt from military service because they are superfluous to the Army's needs, and to establish mobile training units consisting of instructors, agricultural training centres, and Development Corpsmen, so that a greater number of farmers can receive on-the-job training.

20 - Another basic policy is to co-ordinate branches of agricultural training in every region with technical problems of production, type of cultivation, climatic and geographical conditions and manpower skills required in that locality and also to create conditions of work which will enable the trainees and farmers to

TABLE 5 — FORECAST OF THE DEMAND FOR SKILLED MANPOWER IN THE AGRICULTURE SECTOR DURING THE FOURTH PLAN

Type of Skill	Public sector demand	Per cent	Private sector demand	Per cent	Total	Per cent
Agricultural engineer and specialist	1,600	77	480	23	2,080	100
Agricultural technician	4,130	68	1,900	32	6,030	100
Trained farmer	—	—	292,000	100	292,000	100
Total	5,730	2	294,380	98	300,110	100

acquire practical experience and become fully acquainted with the natural characteristics and agricultural problems and potentialities of the region.

21 - In order to interest agricultural school graduates in the practical utilization of their special skills and at the same to raise agricultural productivity they should be granted loans and plots of dam-irrigated or other suitable land so as to encourage them to establish agricultural production enterprises.

b. Industry, Mining and Construction

22 - According to forecasts, the number of persons employed in industry will increase from 1,686,000 in 1346 to 2,103,000 in 1351, an increase in this sector of about 417,000 persons. The distribution of these newly employed persons by major sectors of industry will be as shown in Table 6, which also sho
requirements of this sector for skill
neers, technicians, skilled workers) a
ductive employees during the Fourt

23 - The question of meeting the
country's industries for various l
personnel during the Fourth Plan
problems, the most important of wh
below:

a. in the field of engineering educa
existing capacities of institutions of
Iran a shortage of engineers will be
unless effective measures are tak
capacities. This shortage will be
fields of electrical and mechanical

TABLE 6 — DISTRIBUTION OF NEWLY EMPLOYED PERSONNEL IN MAIN BRANCHES OF
LEVEL OF SKILL DURING THE FOURTH PLAN

Branch of Industry	New employees		Productive employees		
	No.	Per cent	No.	Per cent	N
Manufacturing	297,000	71	242,000	71	1,
Construction	94,000	23	75,000	22	
Electricity	10,000	2	6,000	2	
Mining	16,000	4	15,000	5	
Total	417,000	100	338,000	100	2,

Branch of Industry	Technicians		Skilled workers		Non
	No.	Per cent	No.	Per cent	N
Manufacturing	6,000	48	117,000	68	55,
Construction	4,400	35	48,000	28	19,
Electricity	1,500	12	4,000	3	4,
Mining	560	5	2,000	1	1,
Total	12,460	100	171,000	100	79,

will be in greater demand during the Fourth Plan than other fields. At present only the Faculty of Engineering of Tehran University and the Tehran Polytechnic produce graduates in these two fields. As some of these graduate engineers enter the teaching profession the remainder are only enough to fill about half of the required positions. The Faculty of Engineering at Shiraz and the Aryamehr Industrial University will produce graduates in these fields, but because of military service and other reasons only limited number of them will be able to enter the labour market during the Fourth Plan. Ways must therefore be found to persuade the large numbers of Iranian engineers residing abroad who have specialized in the fields required by Iran to return to Iran and take up specialized employment.

Another important problem as regards the training of engineers is the limited number of subjects taught by engineering faculties. Several basic fields of study, such as industrial design, metallurgy and electronics, are still overlooked. Attempts will be made during the Fourth Education Plan to overcome these deficiencies.

b. As regards technicians, the capabilities of the country's "honarestans" (medium-level vocational schools) for training the technicians needed for the Fourth Plan are limited, and in some fields which in terms of quantity are more developed, they can barely meet half the requirements of the country. Such fields as industrial chemistry, industrial designing, metallurgy, mining and soil technology are still not included in the country's vocational training system, although there is already a serious need for specialists in these fields. With the situation as it is today, there is going to be a general shortage of properly-qualified medium-level technicians during the Fourth Plan period. To overcome this shortage, both in terms of quality and quantity, it is essential that new vocational schools are established and that basic reforms are introduced into the country's system of technical and vocational education during the Fourth Plan by the rapid but well-planned adoption of the following measures:

i. the speedy enforcement of the middle-level industrial vocational schools project which has been approved by the National Council for the Mobilization of Manpower the purpose of which is to co-ordinate vocational and technical training with the actual needs of the labour market (See Appendix 1 of Detailed Manpower Report);

ii. a revision of the duties, teaching methods and working hours of instructors at vocational and technical schools with a view to upgrading their employment status and increasing their qualitative as well as quantitative output. (See Appendix 3, Detailed Manpower Report.);

iii. the maximum diversification in the curricula of vocational schools, so as to ensure the supply of specialists required by the country's productive and administrative agencies (See Appendix 4, Detailed Manpower Report.);

iv. the preparation and publication of textbooks in Persian in all fields of vocational and technical training for theoretical and practical purposes.

In view of these points, if serious and effective measures are carried out in the course of the Fourth Plan to improve vocational training at "honarestans" merely by reducing the number of drop-outs, which at present will amount to about 30 per cent of the total enrolment, it will be possible to produce some 8,000 graduates during the Fourth Plan period from existing "honarestans" without the need for any new investment. This number will meet about two-thirds of the country's need for middle-level technicians.

c. As regards skilled workers, at present about 600 persons graduate each year from "amuzeshgahs" (elementary vocational schools) which are responsible for the pre-employment training of skilled workers and specialists. The Ministry of Labour and Social Affairs also has four vocational training centres to prepare vocational and technical instructors for on-the-job training and raising the level of skills of industrial workers. It is expected that Ministry of Labour training schemes during the Fourth Plan will cover about 50,000 workers. In addition, training centres will be established for the workers required for the Esfahan steel mill and the machine-tool plants at Arak and Tabriz.

Since in addition to workers already employed, most of whom need to have their technical and vocational knowledge upgraded, the Fourth Plan will require about 172 thousand skilled and semi-skilled workers in various branches of industrial activity, and in view of the shortage of competent vocational instructors, the utmost use should be made of the facilities of the existing training centres, by setting up day courses and evening courses and adopting rapid and intensive training methods. To facilitate this, it is essential that the organization of these centres is reviewed in every respect during the Fourth Plan and efforts should be made to see that the private sector plays a more active part in establishing vocational training centres, which should be affiliated to large productive enterprises.

d. Another subject of interest is the problem of training industrial managers, the greater part of whom (87 per cent) will be needed by the manufacturing sector, and the remainder (13 per cent) in the construction, electricity and mining sectors, in order of requirement. In this respect, the adoption of the following measures seems to be essential :

i. Since the Organization for Industrial Management has so far concentrated its efforts on the activities of large factories, a considerable number of medium-sized and small factories, because of their weak financial position, have not been able to avail themselves of the training services provided by the Organization. Since this latter group will assume increasing importance in the industrial production of the country by becoming virtually the subsidiaries of larger factories, it is essential that the training functions of the Organization for Industrial Management Institute in the fields of management and industrial supervision, accounting, cost accounting, industrial accounting, industrial warehousing, stock control, marketing, quality control and productivity, should be expanded during the Fourth Plan.

ii. During the Fourth Plan period engineering and industrial faculties should introduce into their curricula such courses as the principles of industrial accounting, industrial management production research, analysis of distribution and sales networks, production cost analysis, production engineering, linear programming, and modern methods of evaluating investment and appraising industrial projects.

c. Services Sector

24 - The number of persons engaged in the services sector is steadily increasing, both because of the expansion of industrial activity and because of the natural growth and diversification that is constantly taking place in the services sector itself. The number of persons engaged in the services sector during the Fourth Plan period (1346-51) is expected to be as follows:

Sector	Estimate for 1346	Forecast for 1351	Increase
Services	1,874,000	2,197,000	323,000

At the end of 1346 the number of persons engaged in this sector amounted to 27 per cent of the working population and it is expected that by 1351 it will rise to 28 per cent. The sector will therefore show an annual growth of 3 per cent in personnel employed, or a numerical increase of 323,000 during the Fourth Plan period.

25 - During the Fourth Plan period the distribution of new employment in the services sector by the three main levels of occupation will be as shown in Table 7.

26 - By utilizing graduates in law, economics, social science, public and business administration and those graduating from specialized institutes of higher education, it is not expected that the Fourth Plan will encounter any shortage of personnel in the services sector as far as quantity is concerned. The main problem, however, lies in improving the quality of education and adapting educational programmes to the scientific and technological requirements at the senior levels of specialized services.

27 - Some of the requirements of the services sector for medium-level personnel in the fields of book-keeping and secretarial work during the Fourth Plan can be met by expanding commercial schools for boys and

TABLE 7 — DISTRIBUTION OF NEW EMPLOYMENT IN THE SERVICES SECTOR DURING THE FOURTH PLAN, BY THE THREE MAIN LEVELS OF OCCUPATION AND BRANCHES OF ACTIVITY

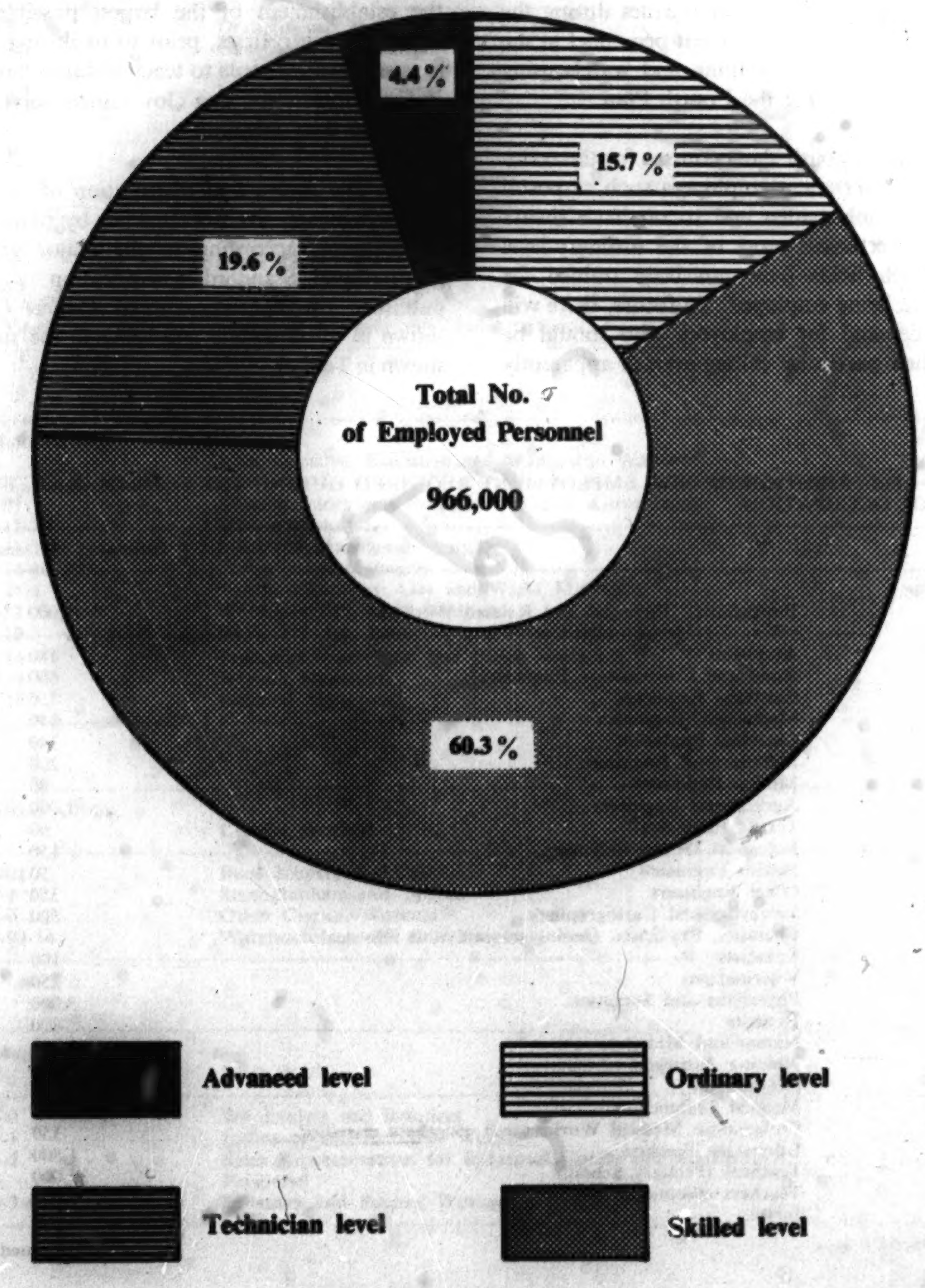
Level of occupation	Total all services		Public and miscellaneous services		Commerce, banking, insurance		Transport, warehousing, communications, telecommunications	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Total	323,000	100	144,000	100	151,000	100	28,000	100
Senior staff	25,000	8	21,000	15	3,000	2	1,000	4
Middle-level employees	147,000	45	60,000	41	85,000	56	2,000	7
Ordinary employees	151,000	47	63,000	44	63,000	42	25,000	89

TABLE 8 — DISTRIBUTION OF NEW EMPLOYMENT REQUIRED DURING THE FOURTH PLAN, BY MAJOR GROUPS OF OCCUPATION

Code No.	Title	Estimated No. required	Percentage
0	Professional, Technical and Related Workers	91,000	9
1	Administrative, Executive and Managerial Workers	17,600	2
2	Clerical Workers	44,200	5
3	Sales Workers	152,700	16
4	Farmers, Fishermen, Hunters, Loggers and Related Workers	217,900	22
5	Miners, Quarrymen and Related Workers	14,500	1.5
6	Workers in Transport and Communication Occupations	21,300	2
7/8	Craftsmen, Production-Process Workers and Labourers Not Elsewhere Classified	308,000	32
9	Service, Sport and Recreation Workers	98,800	10
	Total	966,000	100

(Discrepancy in percentage total due to rounding)

PERCENTAGE DISTRIBUTION OF NEW EMPLOYED PERSONNEL BY VARIOUS LEVELS OF SKILL DURING THE FOURTH PLAN PERIOD



secretarial schools for girls, but the revision of the curricula of such schools in line with the requirements of the labour market is a matter which should receive the attention of the educational authorities during the Fourth Plan. The training of sufficient personnel in the fields of accounting, technical filing and warehousing must receive priority during the Fourth Plan.

28 - Measures to establish short courses for the training of ordinary Government employees such as postal workers, firemen, railwaymen and so on have always been taken. Nevertheless most of the ordinary-level employees in such fields have not been trained for their work before being employed. In future, there will be a growing demand for employees who should be competent at their particular calling even in apparently simple jobs such as warehousing, property protection, postal work, distribution and sale of manufactured items, and so on . During the Fourth Plan, therefore, the establishment of the largest possible number of short training courses, prior to or during employment, is recommended so as to teach ordinary-level employees in Government and non-Government services the rudiments of their vocation.

29 - The forecast of distribution of new manpower required during the Fourth Plan by main branches of employment, according to the major groups of the International Standard Classification of Occupations published by the International Labour Office, is as shown in Table 8, and according to the sub-groups as shown in Table 9.

TABLE 9 — DISTRIBUTION OF NEW EMPLOYMENT REQUIRED DURING THE FOURTH PLAN, BY SUB-GROUPS OF OCCUPATION

Code No.	Title	Estimated No. required
Major Group 0	Professional, Technical and Related Workers	91,000
0-01	Architects	180
0-02-0	Road and Construction Engineers	600
0-02-2	Electrical Engineers	750
0-02-3	Mechanical Engineers	840
0-02-60	Chemical Engineers	340
0-02-68	Metallurgical Engineers	200
0-02-7	Mining Engineers	90
0-02-88	Agricultural Engineers	1,700
0-02	Textile Engineers	60
0-02	Industrial Design Engineers	150
0-02	Health Engineers	50
0-2-8	Other Engineers	350
0-03	Surveyors and Cartographers	800
0-1	Chemists, Physicists, Geologists and other Physical Scientists	100
0-21	Veterinarians	250
0-3	Physicians and Surgeons	3,000
0-3	Dentists	800
0-4	Nurses and Midwives	2,000
0-4	Nursing Assistants	5,700
0-51	Pharmacists	580
0-53	Medical Technicians	1,400
0-59	Professional Medical Workers not elsewhere classified	350
0-61	University Teachers	1,800
0-69-30	Teachers (Primary School)	35,000
0-69-40	Teachers (Secondary School)	7,900
0-81	Jurists	700

Continued on next page

(Table 9 cont.)

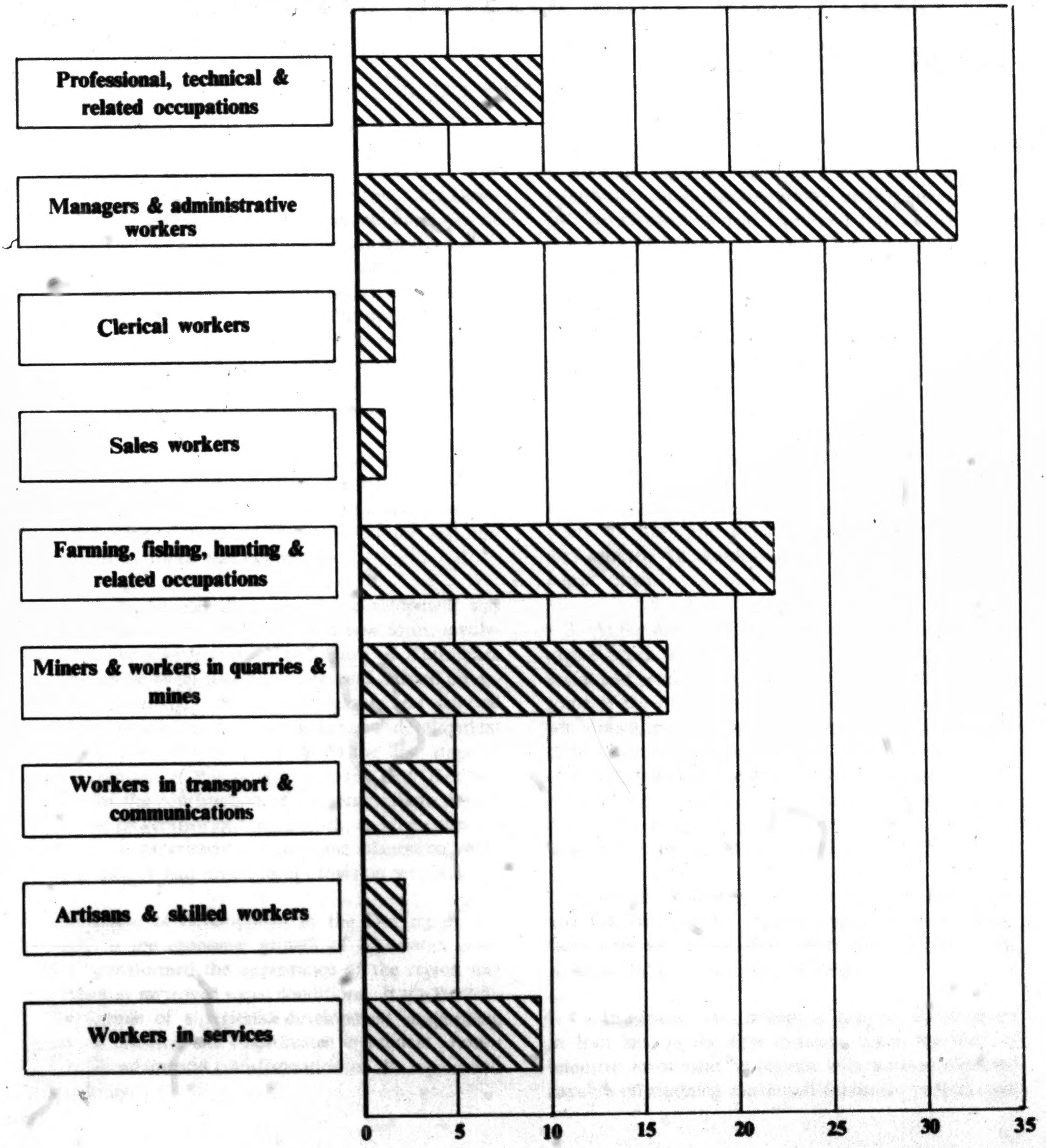
Code No.	Title	Estimated No. required
Major Group 0	Professional, Technical and Related Workers	
0-X1	Draughtsmen and Industrial Designers	900
0-X9	Construction Technicians	2,400
0-X9	Electrical Technicians	2,000
0-X9	Mechanical Technicians	3,400
0-X9	Chemical Technicians	660
0-X9	Metallurgical Technicians	1,500
0-X9	Mining Technicians	580
0-X9	Telecommunications Technicians	870
0-X9	Agricultural Technicians	6,100
0-X9	Textile Technicians	300
0-X9	Health Technicians	900
0-X9	Other Technicians	600
0-Y1	Accountants, Professional	4,500
0-Y4-20	Economists	260
0-Y4-40	Statistical Workers and Mathematicians	340
Major Group 1	Administrative, Executive and Managerial Workers	17,600
1-01	Administrators and Executive Officials, Government	2,000
1-11-20	Mining Managers	190
1-11-30	Industrial Managers	11,500
1-11-40	Construction Managers	1,350
1-11-5	Health, Electricity, Gas and Water Managers	160
1-12	Wholesale and Retail Managers	600
1-13	Bank, Finance, Insurance and Real Estate Managers	400
1-14	Transport Warehouse and Office Managers	300
1-15	Services Managers	1,000
1-16	Hospital Managers	100
Major Group 2	Clerical Workers	44,200
2-01	Book-keepers and Cashiers	10,000
2-1	Stenographers and Typists	2,800
2-9	Other Clerical Workers	27,400
2-99-54	Warehousemen and Storekeepers	4,000
Major Group 3	Sales Workers	152,700
3-0	Wholesalers and Retailers	97,700
3-1	Insurance and Actuarial Workers	700
3-2	Sales Representatives for Industrial Goods and Marketing Personnel	1,400
3-3	Salesmen and Related Workers	52,900

Continued on next page

(Table 9 cont.)

Code No.	Title	Estimated No. required
Major Group 4	Farmers, Fishermen, Hunters, Loggers and Related Workers	217,900
4-0	Farmers, Farm Workers and Workers in Related Services	217,900
Major Group 5	Miners, Quarrymen and Related Workers	14,500
5-0	Miners, Quarrymen and Related Workers	14,500
Major Group 6	Workers in Transport and Communication Occupations	21,300
6-2	Aviation Workers and Flight Engineers	400
6-3	Railway Workers	2,700
6-4	Motor Vehicle Drivers	14,500
6-7	Telephone and Telegraph Operators	2,500
6-8	Postal Workers	1,200
Major Group 7/8	Craftsmen, Production-Process Workers, and Labourers Not Elsewhere Classified	308,000
7 (-3-4-5)	Skilled Production-Process Workers	117,000
7-7	Ordinary Production-Process Workers	117,500
7-6	Electricity Labourers	4,500
7-9	Skilled Construction Workers	48,000
-7	Ordinary Construction Workers	22,000
Major Group 9	Service, Sport and Recreation Workers	98,800
9-0	Firemen and other Protective Services Workers	2,300
9-2	Waiters, Bartenders and Related Workers	41,500
9-3	Building Caretakers	13,000
9-2	Other Workers	46,000
	Total new employment	966,000

DISTRIBUTION OF NEW MANPOWER REQUIRED DURING THE FOURTH PLAN BY MAJOR OCCUPATION GROUPS



CHAPTER 6

REGIONAL DEVELOPMENT AND P
DEVEL

HISTORICAL BACKGROUND

1 - It was in the course of the First Seven-Year Development Plan that the question of regional development first attracted the attention of Iranian authorities. With the creation of a development corporation in 1332, Plan Organization embarked on the regional development of the Moghan plain. The purpose of this programme was to supply water for the agriculture of the plain from the river Aras, to settle local tribes, and to convert a nomadic animal husbandry economy into a settled mixed agricultural and animal husbandry economy.

The development of the Moghan plain had an economic aspect as regards the creation of a water-conveyance network and the supplying of water for agriculture, and a social aspect insofaras land distribution and the settlement of tribes was concerned.

2 - In the Second Plan, regional development was again considered, but this time in a new form, involving intensive investments. The region of Khuzestan, which because of its abundant rivers and natural potential had advantages over other regions, was selected for this purpose, and a comprehensive development programme was drawn up for it. As the first stage of implementation of this programme, the river Dez was chosen for the construction of a reservoir dam, powerhouse and power distribution network, and the establishment of an experimental sugar-cane plantation, with a sugar factory and agricultural extension services.

This phase of development in the Dez region has resulted in the economic growth of Khuzestan, completely transformed the appearance of the region and considerably improved social conditions. It is a remarkable example of a regional development programme based on intensive and co-ordinated investment resulting in a fundamental transformation of the region and its economy.

Another regional development
large-scale, multi-purpose survey
by Plan Organization in south-east
provinces of Baluchestan, Sistan a
The aim of this survey was the evalu
resources and economic potential
and the preparation and implement
jects in order to raise the living stan
tants as far as was possible.

The survey showed that because o
and dispersion of centres of populat
tion of a few localities like Jiroft,
did not possess adequate potential f
tion of multi-purpose developmen
course of the Third Plan, howeve
was selected for development inve
began there.

3 - At the start of the Third Plan (
quake struck the region of Ghazvin
social and economic damage. After
some of the stricken villages were b
was drawn up for general developm
plain. The purpose of this plan w
of the groundwater resources of the
lying modern agricultural techni
cultivation and creating agricultu
to raise the productivity and income

In addition to the development p
and Ghazvin, special regional dev
tions were set up for three other
Kohkiluyeh (1345) and Gorgan (1345

4 - In general, the concept of re
in Iran has, in the first instance,
intensive investment in regions wit
capable of attaining maximum eco

secondly, the improvement of the general condition of backward regions. An example of this type of effort can be seen in the regional development projects for Sistan and Baluchestan and the projects of the Authority for Relief and Development in the Persian Gulf Coastal Region.

GENERAL OBJECTIVE OF REGIONAL DEVELOPMENT IN THE FOURTH PLAN

5 - The general objective of regional development in the Fourth Plan is the evaluation of the resources and development potential of suitable regions and to determine a development investment in order to attain maximum output and to accelerate the rate of national economic growth.

SPECIFIC PROGRAMMES

6 - Within the general objectives, the specific regional development programmes in the Fourth Plan will be as follows:

a. the evaluation and selection of agricultural poles on the basis of natural resources, potential effects on other regions and the creation of large farming and animal husbandry units to be operated by advanced techniques. Such poles will be situated in the vicinity of large dams and places where modern irrigation methods are applied. In addition to the continuation of operations in the selected districts of Jiroft, Minab, Kohkiluyeh, Gorgan, Moghan, Ghazvin, the Dez and Sefid Rud areas, agricultural regional development during the Fourth Plan will gradually be extended to the new districts of Rezaiyeh, Mahabad, Arak, the Shah Abbas the Great Dam, the Darius the Great Dam, Kazerun, Kharameh, Darab, Bampur, Saravan, Marivan and Sarddasht, Kermanshahan and Hamadan, Sarakhs and Dareh Gaz, Mazandaran, Garmsar and Varamin. Mashhad and Esfarayen, Torbat-e Jam, Zanjan and Khamseh, Karaj and Shahryar, and other districts of secondary importance.

In the case of animal husbandry, in view of the importance this has in meeting the food requirements of the nation, intensive investment in any of the above poles which are suitable for the development of animal husbandry will not be confined to agricultural operations, but will be strongly recommended and emphasized with regard to the development of large-scale stock farms.

In view of the significant role of the tribes in animal husbandry, factories for processing animal products and breeding centres will be set up in region of settled tribes.

With respect to fisheries, considering the abundant resources of fish and crustaceans in the Persian Gulf and the Sea of Oman, Bandar Abbas and several other suitable ports will be mobilized and equipped as fishery centres, which as poles of development will aid the economic development of the entire region.

b. the creation and expansion of industrial centres in selected regions, which, it is hoped, will ultimately form industrial poles and centres for regional development. Since preparatory work has been carried out during the Third Plan to establish several industrial poles in the cities of Esfahan, Ahwaz, Tabriz and Arak, the objectives of the Fourth Plan will be to complete and mobilize these industrial centres, concentrate investment in the infrastructural and complementary fields and transform them into development poles. New industrial centres will also be established during the Fourth Plan in Shiraz, Bandar Shahpur and Ghazvin and reconnaissance surveys will be carried out for the creation of industrial centres in Rasht, Mashhad, and Kermanshah.

c. the evaluation and selection of service centres including new tourist facilities and the strengthening of existing tourist centres. In addition to the creation of the necessary facilities in the principal axes of tourism, especially along the Bazargan-Tehran and Tehran-Esfahan-Shiraz routes, other centres of interest for tourists have been selected and efforts will be made to expand these as regional development axes.

The expansion of tourist centres such as Minu island. Karand, Kelardasht and Gajereh, Larijan and Ardebil are also envisaged in the Fourth Plan.

GUIDELINES AND OPERATIONAL POLICIES

7 - In order to attain these objectives and to carry

out the programmes mentioned, the guidelines and operational policies of the Regional Development Plan will be as follows:

a. the carrying out of multi-purpose surveys of resources and production potential in all regions of the country for the purpose of expanding and strengthening existing economic poles and creating new ones, so as to identify the most important factor of expansion and growth in each region and in each case to specify suitable development and production projects on which development policies may be based. It is essential to adopt special operational policies for the creation of a suitable environment for the expansion of existing poles of regional development so as to attract private investment and manpower to these regions.

b. the operational policies concerning development poles and the regions where intensive investment is to take place will be the following:

i. the creation of infrastructural facilities by the Government, in such fields as water, electricity, communications and telecommunications;

ii. the establishment of credit and banking facilities;

iii. the provision of public, social and administrative services such as schools, medical centres, and essential administrative units, as required;

iv. the granting of tax exemptions and other incentives.

c. the setting up of special regional development organizations where necessary, and strengthening existing ones, and also the utilization of local institutions for the purpose of mobilizing local resources and potential in order to promote and quicken the pace of regional growth.

d. more rapid decentralization and the creation of attractive conditions to attract investment and skilled personnel to potential regions, reducing the administrative congestion in Tehran and the delegation of functions and responsibilities to local administrative authorities.

CREDIT ALLOCATIONS

8 - The cost of implementing regional development projects has been included in the relative sector Plans, such as agriculture, irrigation, industry, communications and so on. In addition, a credit of Rials 3.6 billion is envisaged for administrative and organizational expenditure, and for essential studies.

a. the provision of [illegible] the administrative services [illegible] and training [illegible] is provided.

b. the granting of [illegible] and other incentives.

c. the setting up of special regional development [illegible] whose necessary [illegible] and also the utilization of [illegible] for the purpose of [illegible] local resources and [illegible] in order to [illegible] the [illegible]

d. [illegible] and the creation of [illegible] conditions to attract investment and skilled personnel to potential regions, reducing the population congestion in Tehran and the [illegible]

CREDIT ALLOCATIONS

8. The [illegible]

In the case of mineral industries, in view of the importance gas has in meeting the fuel requirements of the nation, [illegible] of the above [illegible] which are suitable for the establishment of mineral industry will not be confined to agricultural [illegible]

out the programmes [illegible] the [illegible] operational policies of the Regional Development Plan will be as follows:

a. [illegible] comprehensive surveys of resources and production potential of all regions of the country for the purpose of [illegible] economic plans and [illegible] to identify the most important factor of expansion and growth in each region [illegible] regional development [illegible] ment and manpower in these regions.

[illegible] Tehran [illegible] will be the following:

[illegible]

[illegible] the Fourth Plan [illegible] Tabriz, Isfahan, and Kermanshah.

[illegible] In addition to the [illegible] will be made to expand these as regional development axes.

The [illegible] are also envisaged in the Fourth Plan.

GUIDELINES AND OPERATIONAL POLICIES

8.7 In order to attain these objectives, and to carry

PART 2

PLANS FOR SECTORS OF PRODUCTION

CHAPTER 7

AGRICULTURAL AND ANIMAL HUSBANDRY

INTRODUCTION

1 - Under the present and future economic conditions of Iran, agriculture and animal husbandry are of special significance for the following reasons:

a. At present, the contribution of agriculture and animal husbandry to Iran's Gross National Product is 24 per cent. The value added in this sector will be, after petroleum, the highest of all sectors of production during the Fourth Plan period.

b. The rural population constitutes 61 per cent of the total population of the country and the ratio of employed population in the agriculture sector to the total employed population is 48 per cent. Although the objective of any economic development plan is to reduce the ratio of rural to urban population, according to existing estimates no major changes are expected to occur in these ratios during the five-year period of the Fourth Plan. Therefore, in order to raise the per capita income of this major segment of the population of Iran, greater emphasis should be placed on increasing agricultural production than has been done before.

c. With the growth in population and the increase in purchasing power of various social groups, the consumption of food products will also rise, and if the major part of the food supplies needed are not produced inside the country, growing dependence of the country on imports will create numerous obstacles to economic development.

d. The agriculture sector produces raw materials for many of the industries in Iran, and one of the essential conditions for the expansion of these industries is that large-scale measures are taken to produce the required raw materials in the country.

e. Another basic condition for the expansion of industry is the creation of a stable market for various industrial products, and this will only be possible if the majority of the population, namely the rural inhabitants, can obtain manufactured products by earning a higher income. This in turn will only come about if sustained and fundamental action is taken to remove any obstacles in the way of developing this sector.

PREVIOUS PERFORMANCE OF THE SECTOR

2 - The objective of the Third Plan regarding agriculture was a 22 per cent growth over a five-year period, the equivalent of a 4 per cent annual rate of growth. An evaluation of the performance of the Third Plan indicates that this objective was not achieved and that the average annual growth of the value added in the agricultural sector (at 1344 prices) has not exceeded 2.6 per cent during the Third Plan period.

3 - In general, the main reasons for the relative failure in the attainment of certain objectives of the Plan may be summarized as follows:

a. Three of the five years of the Third Plan period were marked by a severe drought throughout the country and this caused low production level for certain crops.

b. The Third Plan objective of a 4 per cent growth presupposed a substantial investment in agriculture by private individuals and organizations during the Plan period. In practice, however, not only was this assumption not realized, but investment in agriculture was actually lower than it had been in previous years because of a feeling of insecurity on the part of a number of landowners, brought about by the implementation of the Land Reform legislation. Moreover, the Government did not take effective measures to compensate for the low level of investment by the private sector and did not even fully exploit the investment made in the construction of dams.

c. Inasmuchas priority was given to the immediate and rapid implementation of the Land Reform legislation especially the first and second phases, part of the agricultural manpower as well as the existing facilities of the Ministry of Agriculture - technical, administrative and financial - were used in this work, and consequently other functions of the Ministry, which have a direct bearing on increased production, were overshadowed.

d. The organization and personnel of executive agencies were not capable of utilizing all the credits allocated on the implementation of projects which would have been effective in increasing production. As a result, a considerable portion of such allocations was used on organizational matters such as the training and recruitment of new personnel. Furthermore, the existence of financial bottlenecks and non-payment of funds during the working season prevented agricultural activities from being carried out according to schedule and consequently the ability of executive agencies to absorb funds allocated to agriculture was reduced.

4 - Achievements - In spite of the fact that owing to certain problems, some already outlined, the complete attainment of the objectives of the Third Agriculture Plan was not possible, the implementation of the Plan solved many of the basic problems and difficulties in agriculture and paved the way for further fundamental work in the future. In short, as far as agriculture is concerned, the Third Plan period has been marked by the creation of an infrastructure that will permit more rapid growth in the future. The major achievements in this connection are as follows:

a. Land Reform: The Third Agriculture Plan has had extremely positive effects on the solution of basic problems regarding land tenure and land ownership. The rapid and successful enforcement of Land Reform Laws led to the abolition of feudalism, both direct and indirect, and removed the psychological and social obstacles that hindered the useful activities of the farmers. The enforcement of the Land Reform legislation created an unprecedented dynamism among several million toiling villagers and cleared the way for new activities. This in itself was one of the most important and effective measures for the attainment of the objective of increased production.

In the execution of the First Phase of Land Reform, 14,685 villages, fully or partially owned, were purchased and distributed among 631,769 farming families. In the Second Phase, up to the end of 1345, a total of 52,864 villages as well as 17,718 farms were made subject to the provisions of the law and one of three alternatives provided by the law was chosen; in this way the legal status of 2,338,170 farming families was determined.

b. Conservation of Natural Resources: During the Third Plan period, preliminary but fundamental and effective measures were taken for the conservation of natural resources. The nationalization of forests and pastures, which was proclaimed one of the principles of the Revolution, was a major step in this direction. The establishment of a body of armed forestry guards and the reinforcement of forest conservation personnel as well as the preparation of projects for the scientific exploitation of forests up to an annual capacity of 547,000 cubic metres are among the measures taken during this period. Furthermore, experimental work continued in nurseries in 35 localities. These nurseries have produced more than 1,200,000 saplings annually.

In order to train qualified technical staff for this programme, a Faculty of Forestry was established and the Gorgan Forestry Training Centre was strengthened in terms of staff and equipment. Fundamental measures have also been taken every year to train foresters and to hold seminars to increase the knowledge of existing staff.

In addition, in order to conserve and reclaim exploitable pasture-land, and to expand the area of land under fodder by means of crop rotation, a special organization was established which, in spite of its limited personnel and administration, has managed to carry out the following measures: the distribution and sowing of fodder seed in 7,840 hectares of land; the sowing of 3,000 hectares of natural range with a view to ascertaining the effects thereof on fodder productivity; the establishment of stations for reproducing seeds in Karaj, Gorgan, Hamand Absard, Darab, Torogh, and Moghan; the preparation of particulars for 508 pasture areas in various provinces; the drilling of 75 wells and the establishment of 84 troughs in arid pastures.

The exploitation of marine resources, including fish and caviar, game hunting and fishing was subjected to the control of Government agencies or Government-owned companies. As the result, unscientific exploitation of these resources was, to a great extent, abolished. All the above measures have made it possible for more effective measures for correct scientific exploitation of these resources to be taken during the Fourth Plan period.

c. Distribution of Agricultural Credits: According to available statistics, the Agricultural Bank of Iran granted 379,000 loans totalling Rials 8,111 million from its inception until 1339, a period of more than 30 years, whereas from 1340 till the end of Dey, 1345, it granted about 1,838,000 loans totalling approximately Rials 19,849 million.

Although most of the loans in 1342 and 1343 were made in consideration of severe drought conditions and special circumstances brought about by the execution of the Land Reform legislation with the object of maintaining farmers above the subsistence level, measures adopted in the quantitative and qualitative allocation of credits as well as pioneer projects implemented in some areas as "supervised credits" which are co-operative ventures between Bank officials and agricultural extension teams, show promise that in future agricultural credits can be used in a more productive way.

d. Establishment of Co-operative Societies: The legal requirements of Land Reform regarding membership of farmers in the agricultural co-operative societies, led to the establishment, by the end of 1345, of 7,685 societies with about 967,000 members and 68 co-operative federations with a membership of 3,720 societies and a capital of about one billion Rials. In addition, an organization named the Central Organization for Rural Co-operatives was established to promote and direct the co-operative movement and to grant loans. The Organization received the sum of one billion Rials from the Agricultural Bank as capital and a further one billion Rials from Plan Organization as a loan. From these financial resources and from the investments of member farmers themselves a total of three billion Rials is available to the Organization for the granting of loans and extension of credit to co-operative societies and federations.

In spite of their limited experience, the co-operative societies have been able to take effective measures in the provision and distribution of improved seeds, chemical fertilizers, insecticides and pest control equipment, oil products, sugar, and other commodities as well as in the marketing of the main agricultural products.

e. Promoting the Use of Fertilizers: The consumption of fertilizers, which was about 47,000 tons in the first year of the plan, will rise to 130,000 tons in 1346. This increase is due both to the numerous field experiments conducted in various regions within the country to ascertain the best type of fertilizer and its optimum use in various cultivations as well as to the efforts made to introduce the economic advantages of fertilizers, to improve distribution and create credit facilities by private sector and Government agencies. The establishment of a fertilizer plant near Shiraz and the start of construction of a plant in Bandar Shahpur are measures towards self-sufficiency in this field.

f. Control of Pests and Plant Diseases: During the Third Plan period, measures were taken to equip the Evin Centre for research on pests and to establish four provincial research centres. The Ghazvin Development Authority was strengthened to enable it to undertake aerial spraying campaigns, as was the Organization for Plant Conservation which acquired the personnel and new equipment it required. Up to 1344, 385,000 hectares had been treated against general pests and 310,000 hectares had received protection against specific rice, grain, olive and maize pests. The enactment of the Plant Conservation Law in 1346 meant that more effective measures will be taken in this regard in future.

g. Solution of Other Fundamental Agricultural Problems: Noteworthy successes in dealing with other fundamental agricultural problems relating to soil and fertility, extension services, the supply and distribution of improved seeds and plants, and so on, were also achieved in the course of the Third Plan. The Soil Fertility Organization succeeded in equipping a central laboratory in

Tehran, establishing six provincial laboratories and mobilizing twenty teams for research on problems regarding the utilization of fertilizers.

With regard to extension services and the training of farmers, in spite of the fact that some Extension Organization personnel were delegated to the implementation of Land Reform, the Organization was able to render satisfactory services by establishing demonstration fields, teaching farmers how to vaccinate livestock, promoting the use of fertilizers, instructing farmers in methods of pest-control, the use of insecticides and sprayers, demonstrating the advantages of using improved seeds, and so on. The formation of the Extension and Development Corps and the policy of employing young agricultural engineers and specialists for extension duties during their military service did much to strengthen extension activities. The use made of the Aliabad Kamin Agricultural Training Centre in Shiraz, as well as the transfer of agricultural training institutions from the Ministry of Education to the Ministry of Agriculture made it possible to give practical training to young farmers, who play an important part in developing agriculture and raising productivity.

As to the improvement of seeds and plants, although the targets of the Third Plan were not achieved for a variety of reasons, such as the incapacity of the Organization for Seed and Plant Improvement to implement the programme, the existence of complex financial and administrative rules and regulations, inadequate funds allocated to compensate for the difference in the sale and cost price of seeds, and other items, the Organization did manage to supply 6,500 tons of grain seed, 2,300 tons of cotton seed, 300 tons of rice seed and some quantities of improved vegetable seed in 1345. The nurseries established for the production and distribution of improved plants supplied fruit farmers with a total of two million saplings at low prices during the Plan period. Although these measures are only a fraction of what is required, the experience gained is an encouraging portent of the large-scale measures that are to be taken during the Fourth Plan period.

h. Agricultural Research: In terms of the expansion of agricultural research, the Third Plan is significant, because during the Plan period, 4 new agricultural research stations have been established and 59 existing research stations were re-equipped with more personnel and facilities. Research conducted on several hundred varieties of wheat and barley in 20 main and subsidiary stations yielded 13 varieties of improved wheat and 4 varieties of improved barley. Furthermore, experiments on rice led the authorities to the selection of an Italian and an American variety of rice which were allocated numbers and distributed among farmers. The yield of a short-grain variety of rice was 8-10 tons of paddy rice per hectare and another variety, originating in China, yielded 7-8 tons in Iran. At present, 11 varieties of Philipino rice are being experimented in demonstration farms. Firuz and Mehr rice are two long-grain varieties which successfully passed tests in 1345 and steps have been taken to reproduce them. Other experiments have been carried out on oil seeds (soya, sunflower, and groundnuts) in Karaj, Veramin, Gorgan, Esfahan, Mashhad and Mazandaran, with good results.

i. Animal Husbandry: With respect to improvements in animal husbandry and especially in research into the selection of the best local rams and bulls, useful measures have been taken during the past few years in the animal husbandry stations, the most important of which are the following:

i. - During the Third Plan period, the number of artificial insemination units increased to 58, and these are at present capable of inseminating more than 30,000 cows annually.

ii. Records of imported pedigree cows are being kept in the Tehran district with a view to ascertaining the effects of the Stock Improvement Programme on hybrid cows as well as of the milk yield of pedigree cows under Iranian climatic conditions. This survey, along with others, was started during the Third Plan period.

iii. During the past five years several programmes have been implemented in order to raise standards of milk hygiene, by improving milking methods and cattle pens, dehydrating milk and controlling dairy workers' health in dairy organizations around Tehran.

iv. In order to improve local breeds of cattle and sheep, increase their yields, prevent interbreeding of pure-bred local flocks, seminars were held during the Third Plan in four regions of pure-bred sheep (Moghani, Sanjabi, Baluchi and Shirazi Grey) with a view to establishing centres for conserving pure local breeds, distributing pedigree rams among livestock breeders and promoting modern techniques of animal husbandry in tribal areas. At present, 240 pedigree rams are being bred in the centres each year for distribution among sheep-famers.

v. Special attention has been paid during the Third Plan to developing vaccination programmes and in particular to re-equip the Razi Institute. As a result, the output of the Institute increased during the Plan from 45 million to 56 million units of animal vaccine and from 3 million pharmaceutical units to 5 million.

vi. With regard to livestock-disease control, antituberculosis measures were carried out on 10,000 pedigree cattle around Tehran. An anti-brucellosis campaign was carried out successfully, but on a limited scale, in Tehran, Khorasan, Esfahan and Fars. Furthermore, about 20 per cent of the total livestock in the country were injected against communicable diseases like anthrax, smallpox and so on. The establishment of 10 new veterinary clinics in areas of livestock concentration and the re-equipment of ten existing clinics in provincial centres contributed much to the elimination of endemic and parasitic diseases.

DIFFICULTIES AND FUNDAMENTAL PROBLEMS OF THE AGRICULTURAL SECTOR

5 - In spite of all the endeavours made in recent years to eliminate fundamental difficulties, Iranian agriculture is still faced with some important basic problems, the chief of which are the following:

a. the small and scattered nature of productive units;

b. the shortage of capital in the agriculture sector;

c. the lack of basic data on agricultural problems;

d. illiteracy and low levels of technical skills among farmers;

e. the absence of a sound marketin
of agricultural and livestock produ

f. the limited capacity of the count
failure to utilize hand fodder and
tional ingredients for livestock.

GENERAL OBJECTIVES OF
TURE SECTOR DURING TH
PERIOD

6 - The general objectives of th
Plan which have been established v
for production capabilities as we
between the agriculture sector anc
tors, are as follows:

a. a minimum average annual grov
gross product of the agriculture se
the constantly-increasing nutritic
population as well as the supply
domestic industries and export;

b. increasing the productivity of la
semination of modern technique
operation;

c. raising the employment level in
fying occupations, developing c
providing new employment oppo
tering the rural labour market dur

d. the conservation, development
natural resources such as water,
fish and wild game - as well as th
able exploitation of these resourc

e. transforming the structure of ru
of co-operative and self-help activ

THE MAIN OBJECTIVES

7 - In view of the above, the ol
during the Plan period will be as
and 3. The tables show that the t
product of the agriculture and ani
which was Rials 112,620 million
Rials 158,568 million in 1351, at

TABLE 1 — AMOUNT AND VALUE OF AGRICULTURAL PRODUCTION IN 1344 AND 1351, AT 1344 PRICES, AND PERCENTAGE INCREASES

Agricultural products	Year 1344		Year 1351		Percentage increase in value of production in 1351 over that of 1344
	Weight of production (Tons)	Value (Millions of Rials)	Weight of production (Tons)	Value (Millions of Rials)	
1. **Grains**	(5,527,000)	(36,731)	(7,277,000)	(48,965)	31.66
Wheat	3,600,000	24,696	4,700,000	32,242	30
Barley	935,000	3,634	1,135,000	4,412	21
Rice (Paddy)	950,000	8,183	1,400,000	12,060	47.3
Millet	17,000	98	17,000	98	—
Maize	14,000	67	14,000	67	—
Others	11,000	53	11,000	53	—
2. **Industrial crops**	(2,344,150)	(12,388)	(6,090,150)	(20,361)	64.3
Cotton (unginned)	487,000	8,552	600,000	10,536	23.2
Sugar beet	1,411,000	1,656	4,500,000	5,283	218
Seed beet	2,000	45	4,000	90	100
Sugar cane	390,000	390	800,000	800	105
Tea	13,000	249	30,000	575	130.7
Tobacco	25,000	1,229	20,000	983	−20
Oil seeds	10,000	153	130,000	1,980	1200
Jute and fibrous plants	6,150	114	6,150	114	—
3. **Fruit**	(1,056,000)	(10,449)	(1,412,000)	(15,118)	33.71
Citrus fruit	75,000	1,149	110,000	1,944	69.1
Fresh fruit	122,000	1,216	220,000	2,193	80.3
Dates	280,000	2,743	300,000	2,939	7.1
Grapes	516,000	2,904	700,000	4,886	68.2
Dried fruit and nuts	62,000	2,420	80,000	3,122	28.9
Olives	1,000	17	2,000	34	100
4. **Vegetables**	(1,358,000)	(5,635)	(1,980,000)	(8,187)	45.2
Potatoes	188,000	790	210,000	903	11.7
Green vegetables	413,000	1,873	550,000	2,494	33.1
Jaliz*	757,000	2,972	1,220,000	4,790	61.1
5. **Cereals and pulses**	(112,000)	(1,352)	(170,000)	(2,160)	59.7
6. **Fodder crops**	(500,000)	(785)	(1,500,000)	(2,212)	187.8
Alfalfa	300,000	585	(1,500,000)	1,462	150
Other fodder crops	200,000	200	750,000	750	250
7. **Forest produce**	(500,000)	(2,000)	(650,000)	(2,600)	30
8. **Other products**	(40,010)	(2,430)	(51,110)	(4,108)	78
Aromatic seeds and plants	15,000	1,050	20,000	1,400	33.3
Saffron	10	36	10	36	—
Other agricultural products	(25,000)	(1,344)	(31,100)	(1,672)	24.4
Total agricultural products	11,438,160	71,770	19.130.260	102,678	67.26

* "Jaliz" includes all bed crops such as tomatoes, cucumbers and non-orchard fruit.

QUANTITY AND VALUE OF AGRICULTURAL PRODUCTION IN 1344 AND 1351

BASED ON 1344 FIXED PRICES

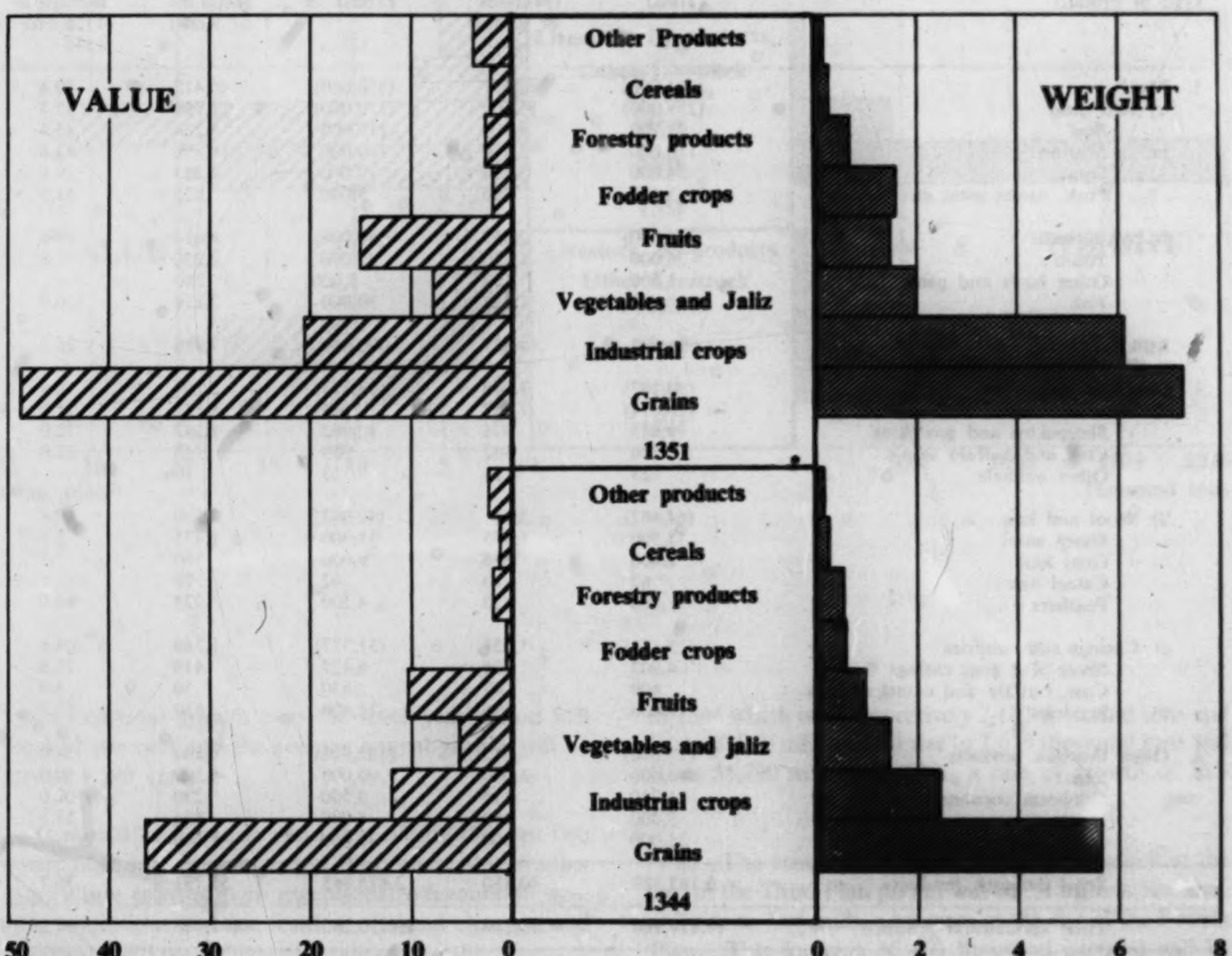
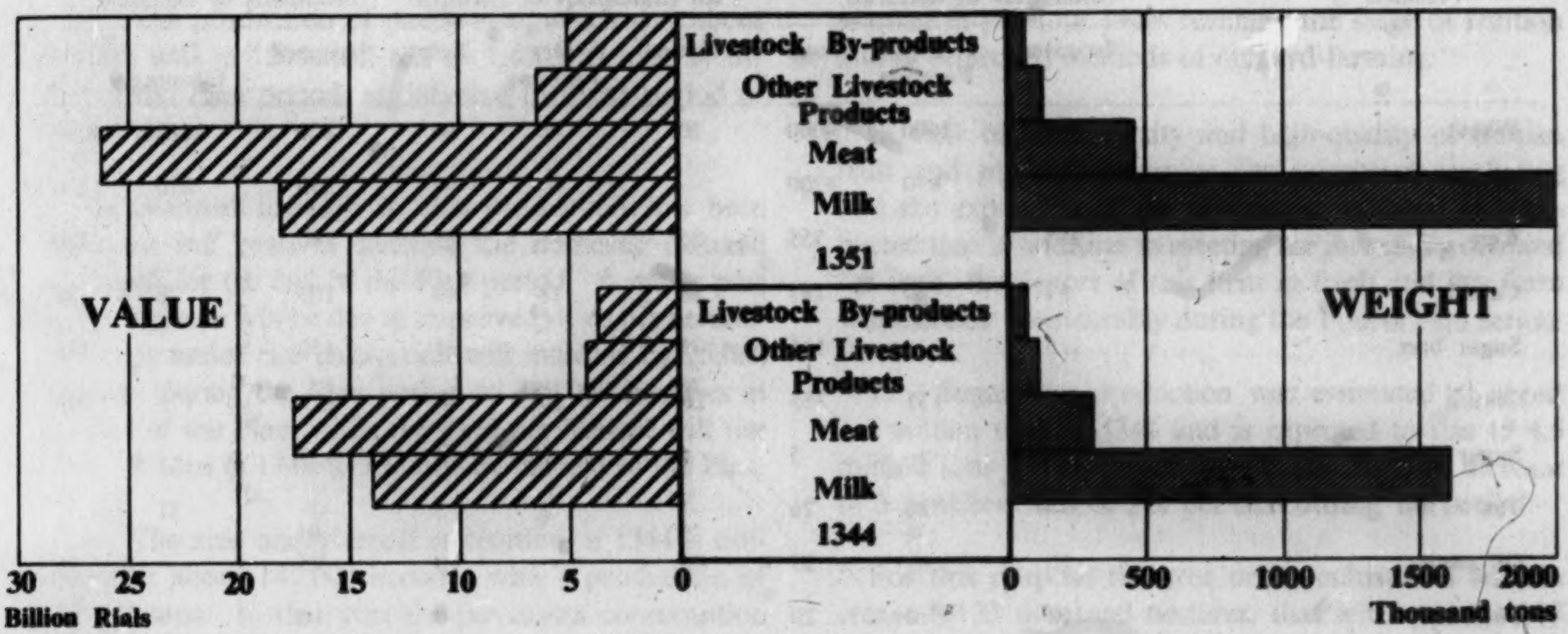


TABLE 2—AMOUNT AND VALUE OF LIVESTOCK PRODUCTION IN 1344 AND 1351, AT 1344 PRICES, AND PERCENTAGE INCREASES

	1344		1351		
Type of Product	Production (Tons)	Value (Millions of Rials)	Production (Tons)	Value (Millions of Rials)	Percentage increase in 1351 over 1344
1. **Meat**	(304,000)	17,557	(450,000)	26,412	50.4
a) Red meat	(259,000)	15,000	(370,000)	21,798	45.3
Beef	91,700	4,200	115,000	5,264	25.4
Mutton	110,000	7,270	180,000	11,896	63.6
Goat	54,000	3,250	70,000	4,213	29.6
Pork, camel meat etc.	3,300	280	5,000	425	51.5
b) White meat	(45,000)	2,557	(80,000)	4,614	80.4
Poultry	25,000	1,250	45,000	2,250	80.0
Other birds and game	5,000	250	5,000	250	—
Fish	15,000	1,057	30,000	2,114	100.0
2. **Milk**	1,600,000	14,329	2,000,000	17,910	25.0
3. **Livestock by-products**	(80,187)	4,449	(93,383)	5,204	16.9
a) Skins	(10,614)	1,252	(12,944)	1,524	21.7
Sheepskins and goatskins	9,805	936	11,962	1,142	22.0
Cow and buffalo skin	786	302	959	368	22.0
Other animals	23	14	23	14	—
b) Wool and hair	(44,462)	2,146	(49,062)	2,370	10.4
Sheep wool	33,500	1,675	35,500	1,775	5.9
Goat hair	8,400	336	9,000	360	7.1
Camel hair	62	10	62	10	—
Feathers	2,500	125	4,500	225	80.0
c) Casings and sundries	(25,111)	1,051	(31,377)	1,310	24.6
Sheep and goat casings	4,902	328	6,127	410	25.0
Cow, buffalo and camel casings	809	47	850	50	5.0
Sundries	19,400	676	24,400	850	25.7
4. **Other livestock products**	(99,000)	4,515	(132,500)	6,264	38.0
Eggs	60,000	3,000	90,000	4,500	50.0
Silkworm cocoons	1,750	115	3,500	230	100.0
Honey	3,000	400	4,000	534	33.3
Other livestock products	35,000	1,000	35,000	1,000	—
Total livestock products	2,183,187	40,850	2,675,883	55,791	36.7
Total agricultural products	11,437,160	71,770	19,130,260	102,678	67.26
Total agricultural and livestock products	13,620,347	112,620	21,806,143	158,918	40.7

AMOUNT AND VALUE OF LIVESTOCK PRODUCTION IN 1344 & 1351

BASED ON 1344 FIXED PRICES



estimated total growth over the seven-year period will be 40.7 per cent and the average annual growth will be about 5 per cent.

It should be borne in mind that during the first two years of this seven-year period (1345 and 1346), Iranian agriculture enjoyed both exceptionally favourable weather conditions and the fruition of social changes, and attained this 5 per cent average rate of growth.

8 - The weight and value of the gross product of agriculture and forestry, which were respectively 11,437 thousand tons and Rials 71,770 million in 1344, will rise to 19,230 thousand tons and Rials 102,678 million in 1351, representing a growth rate of 43.3 per cent during the seven-year period.

9 - The weight and value of livestock and fish products in 1344 which were respectively 2,183 thousand tons and Rials 40,850 million, will rise to 2,675 thousand tons and Rials 55,790 million in 1351, a rate of growth of 36.7 per cent.

10 - The area of land under cultivation, which at the end of the Third Plan period will be 7.1 million hectares, will rise to 7.55 million hectares at the end of the Fourth Plan. This increase of 450 thousand hectares will be specifically due to the cultivation of virgin land under dams constructed or to be constructed during the Third and Fourth Plan periods as shown in Table 3. This additional area includes 150 thousand hectares of dry-farmland and 300 thousand hectares of irrigated land. In addition, 100 thousand hectares of irrigated lands will become arable by the end of the Fourth Plan period but will only be utilized in the Fifth Plan period.

TABLE 3 — AREA UNDER CULTIVATION AT END OF THIRD PLAN AND INCREASE DURING FOURTH PLAN BY VARIOUS AGRICULTURAL PRODUCTS

Products	Area under cultivation at end of 3rd Plan (thousands of hectares)			Increase in area under cultivation during 4th Plan (thousands of hectares)			Area under cultivation at end of 4th Plan (thousands of hectares)		
	Irrigated	Dry Farming	Total	Irrigated	Dry Farming	Total	Irrigated	Dry Farming	Total
Wheat	1400	2600	4000	20	40	60	1420	2640	4060
Barley	330	870	1200	—	—	—	330	870	1200
Rice	355	—	355	25	—	25	380	—	380
Cereals	87	60	147	22	18	40	109	78	187
Sugar beet	115	—	115	35	—	35	150	—	150
Cotton	200	155	355	20	20	40	229	175	395
Sugar cane	5	—	5	4	—	4	9	—	9
Tea	—	26	26	—	5	5	—	31	31
Oil seeds	25	—	25	70	—	70	95	—	95
Tobacco	10	10	20	—	—	—	10	10	20
Jute and fibrous plants	1	4	5	—	—	—	1	4	5
Fruit	280	80	360	20	—	20	300	80	380
Vegetables	110	90	200	15	10	25	125	100	225
Fodder crops	142	35	177	69	57	126	211	92	303
Other grains and crops	90	20	110	—	—	—	90	20	110
Total	3,150	3,950	7,100	300	150	450	3,450	4,100	7,550
Area ready for cultivation below dams				100		100	100		100
Grand Total	3,150	3,950	7 100	400	150	550	3,550	4,100	7,650

OBJECTIVES OF PLANT AND LIVESTOCK PRODUCTION

11 - Considering the importance of wheat in Iran the objective for wheat production will be the satisfaction of domestic demand during the Fourth Plan period. It is estimated that at the end of the Plan period, wheat production will have increased by 1.1 million tons over 1344.

The policy for wheat production during the Fourth Plan period has been formulated with a view to increasing the area under wheat cultivation to only a limited degree (a maximum of 60 thousand hectares of new land) while paying more attention to intensive wheat farming, so that at the end of the Plan period improved seeds and fertilizers are used on 500 thousand hectares of irrigated wheat cultivation, thus increasing the average yield per hectare from 867 kilograms in 1344 to 1,150 kilograms at the end of the Fourth Plan.

12 - Barley production, which was about 935 thousand tons in 1344 is expected to rise to 1,135 thousand tons by the end of the Fourth Plan.

13 - The production of paddy rice, which was about 950,000 tons in 1344, will rise to 1,400,000 tons by the end of the Plan period, an increase over the period of 47 per cent.

The planned increase in rice production has been made on the basis of meeting the domestic demand envisaged for the end of the Plan period. A major part of this increase will be due to improved yields per hectare. The area under rice cultivation will increase by 25,000 hectares during the Plan period to 380,000 hectares at the end of the Plan, while the yield per hectare will rise from 2.8 tons in 1344 to 3.6 tons by the end of the Plan.

14 - The area under cereal cultivation in 1344 is estimated at about 147,000 hectares with a production of 112,000 tons. In that year the per capita consumption of cereals was 11.7 grammes per day and the per capita intake of protein from cereals was 2.8 grammes.

Because of the difficulties in obtaining an adequate amount of animal protein and in order to meet the demand for protein in general, it is intended to increase the acreage under cereal cultivation to 187,000 hectares with a production of 170,000 tons during the Plan period by introducing new techniques in the present crop rotation system.

15 - The area under vegetable and non-orchard fruit cultivation in 1344 was estimated at 200,000 hectares with a production of about 1.3 million tons. Owing to the increasing internal demand for these products and the need to export them during the Plan period, stress will be placed on supporting programmes, encouraging and developing private institutions engaged in the reproduction and improvement of seeds as well as on comprehensive extension activities and the formation of co-operative societies for production and marketing, the establishment of cold storages and packing-stations for these products in major areas, so that the area under such cultivation will increase to 225,000 hectares by 1351, with a production of 1,980,000 tons.

16 - The production of fresh and dried fruit, which was about 950 thousand tons in 1344, is expected to reach 1.5 million tons by the end of the Fourth Plan. This increased production will be the result of trees planted in previous years reaching the stage of fruition and of improved methods of orchard-farming.

In view of the diversity and high-quality of Iranian fruit and planned measures for improved marketing and the expansion of the processing industry, it is expected that in addition to meeting the increasing demand for fruit, the export of this item in fresh and dry form will increase considerably during the Fourth Plan period.

17 - Sugar-beet production was estimated at about 1.4 million tons in 1344 and is expected to rise to 4.5 million tons by the end of the Fourth Plan, an increase of 3.1 million tons or 218 per cent during the period.

For this purpose the area under cultivation will increase by 35 thousand hectares, that is to say, the 115 thousand hectares under beet cultivation at the end of the Third Plan will increase to 150 thousand by the end of the Fourth Plan. The yield per hectare will also increase from 18.8 tons in 1344 to 30 tons at the end of the Fourth Plan.

18 - The production of sugar cane, which was about 390 thousand tons in 1344, will continue to increase, as in the past, during the Fourth Plan period, reaching 800 thousand tons in 1351. This increase, about 105 per cent, will be due to the extension of the area under cultivation from 5 thousand hectares at the end of the Third Plan period to 9 thousand hectares at the end of the Fourth Plan.

The implementation of the plan to increase sugar beet and sugar cane production is expected to make Iran independent of sugar imports by the end of the Fourth Plan.

19 - With the priority given to the domestic production of agricultural consumer goods and the need to make the country self-sufficient in respect of raw vegetable oil, the production of oil seeds (sesame, sunflower, groundnut, soya-bean and "golrang") which amounted

to about 10,000 tons in 1344, is expected to increase to 150,000 tons. (The consumption of vegetable oil in Iran was approximately 90,000 tons in 1344.) In addition, the area under oil-seed cultivation, which was 25,000 hectares at the end of the Third Plan, will rise to 95,000 hectares by the end of the Fourth Plan period.

The attainment of these objectives will be facilitated by the execution of relevant projects in the field of research and studies, the production of improved seeds, the stabilization of prices, the guaranteed purchase of crops by factories producing vegetable oil, the construction of silos and the encouragement of oil seed cultivation by means of Government technical and financial aid to the private sector.

20 - The production of unginned cotton in 1344 amounted to 487,000 tons. A boll worm epidemic in 1345, however, substantially reduced the area under cotton cultivation and hence production during the past two years. The Fourth Plan objective is to increase the area under cultivation to 395,000 hectares and production to 600,000 tons by 1351. This extra production will be achieved both by increasing the area under cultivation and by raising the average yield of cotton from 1,200 kilogrammes to 1,500 kilogrammes per hectare.

It is expected that after meeting domestic consumption, the export of ginned cotton will increase from 96,000 tons in 1344 to a bout 140,000 tons in 1351.

The production of cotton seed, which is a by-product of cotton and is at present the main raw material for the production of vegetable oil in Iran, will reach 400,000 tons by the end of the Fourth Plan.

21 - In 1344 the production of processed tea was 13,000 tons, but with new tea plantations maturing in future years, production will increase. Production will also be increased as a result of the implementation of projects for the improvement of tea plantations, the more widespread utilization of modern agricultural techniques together with the use of chemical fertilizers, pest control and the expansion of the area under cultivation.

The average yield per hectare, which in 1344 was approximately 740 kilogrammes of processed tea (3,000 kilogrammes of unprocessed tea), will rise to 1000 kilogrammes by the end of the Fourth Plan period, and total production will rise to 30,000 tons. The area under tea cultivation will increase from 26,000 hectares to 31,000 hectares during Fourth Plan period.

22 - The production of cigarette tobacco in 1344 was 20,770 tons while consumption amounted to 10,000 tons. Thus, in spite of the population increase and the rise in per capita consumption, production is still higher than domestic consumption and at the end of that year more than 30,000 tons of tobacco were in storage in the warehouses of the Tobacco Monopoly. For this reason, the area under cigarette tobacco cultivation was reduced in 1345 and will remain fixed at the present level until a reliable export market is found. During the Plan period, efforts will be made by establishing a central tobacco research institute and constructing proper tobacco warehouses throughout the country to improve the quality and raise the yield per hectare.

The production of pipe tobacco in 1344 amounted to 2,200 tons, which was sufficient to meet domestic consumption. In the Fourth Plan, efforts will be made to improve the quality and increase the yield per hectare of this crop.

The production of water-pipe tobacco was 2,580 tons in 1344. By setting up an experimental farm in Esfahan during the Fourth Plan, steps will be taken to raise production, improve the quality and increase exports of this product.

23 - During the Fourth Plan period, timber production will increase by 35 per cent, and preliminary steps will be taken to establish a woodpulp paper mill.

The increase in population will naturally lead to a greater demand for fuel, but in order to prevent any pressure on forest resources, vegetation and the use of animal manure as fuel, greater attention will be paid during the Fourth Plan to the distribution of kerosine in rural areas. Kerosine distribution in rural areas, which started during the Third Plan with the co-operation of the National Iranian Oil Company and the Central Organization for Rural Co-operatives, will be further expanded through rural co-operatives during the Fourth Plan.

24 - The nutritional value of pasture lands and fodder in Iran, which in 1344 amounted to 6.10 million tons of nutritional units, will increase by 650,000 tons during the Fourth Plan to 6.75 million ton units,* and the area under fodder will increase from 173,000 hectares to 303,000 hectares. In addition, there will be an additional 50,000 hectares of winter fodder cultivation in existing farms, without the production of other crops being reduced.

25 - The production of mutton and beef, which was 209,000 tons in 1344, will rise to 370,000 tons per year by the end of the Fourth Plan. Poultry production, which was 30,000 tons in 1344, will rise to 50,000 tons per year by the end of Fourth Plan, while salt-water fishing and production from fresh-water fisheries, which amounted to 15,000 tons in 1344, will rise to 30,000 tons. In addition, efforts will be made during the Fourth Plan to increase the consumption of white meat and annual per capita consumption will increase from 12 kilogrammes to 15 kilogrammes.

26 - The average production of milk and dairy products, which amounted to 1.6 million tons in 1344, will increase to 2 million tons by the end of the Fourth Plan and it is expected that part of this increase will be provided from the stock farms to be established in connection with new fodder cultivation.

27 - Egg production, which amounted to 60,000 tons in 1344, will rise to 90,000 tons by the end of the Fourth Plan.

28 - The production of wool, skin, casings and other livestock products will increase by 22 per cent during Fourth Plan. By controlling exotic parasitic pests and diseases, utilizing modern techniques in slaughterhouses and related factories, proper skinning and wool shearing, and by applying standardization, the quality of these products will be improved.

GENERAL POLICIES

29 - In order to achieve these targets, the following general policies will be adopted:

a. the encouragement of increased production of commodities which are presently imported to meet domestic consumption;

b. the encouragement of private investment and emphasis of public investment in areas which have larger production potentialities;

c. the stabilization of prices of major agricultural products at levels which encourage investment in their production;

d. the establishment of agricultural joint-stock companies by farmers who have acquired land, on co-operative principles;

e. the mobilization of capital at present widely dispersed in rural and urban areas and the encouragement of capital-holders to establish large-scale production units or to participate in investment in units which aim at mass production for marketing purposes;

f. the increasing of working capital of Government credit institutions, and the facilitating of the terms of agricultural and animal husbandry loans in particular, and the creation of necessary conditions under which loans can be utilized in a proper manner;

g. the expansion and strengthening of co-operative societies by increasing their capital, and the provision of means for guiding and training their directors and members;

h. the devotion of special care to agricultural and animal husbandry training at all levels and the making of particular efforts for the training of technicians and skilled workers in various fields of agriculture and animal husbandry;

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* A nutritional unit is the equivalent of one kilogramme of barley.

i. the adoption of policies that will ensure the maximum utilization of the investment made by the private sector for performing services at present undertaken by the Government;

j. the devotion of close attention to agricultural and animal husbandry research and the provision of the required personnel, facilities and equipment for research, so as to solve outstanding problems in these fields;

k. the expansion of modern agricultural techniques at the rural level, by fully utilizing the results obtained from practical and scientific agricultural research work;

l. the utilization of sea and river resources and the encouragement of domestic consumption of various fish and other forms of sea-life, so as to overcome part of the shortage of animal protein;

m. the utilization on a large scale and with modern technology of dam-irrigated land, by encouraging the private sector, and in the absence of volunteers, know-how or capital in the private sector, direct Government initiative to establish large farming units.

IMPORTANT AGRICULTURAL AND ANIMAL HUSBANDRY PROGRAMMES AND EXECUTIVE POLICIES RELATED THERETO

30 - The most important programmes to be implemented during the Fourth Plan for the attainment of the above objectives will be the following:
the utilization of land resources in a suitable and balanced manner, better utilization of water resources, the mechanization of agriculture, the expansion of the use of animal and chemimal fertilizers, plant protection, supply and distribution of saplings and seeds, land reform, the extension of modern agricultural methods, agricultural training, agricultural research, improvements in the rural economy and the marketing of agricultural products,agricultural credits, animal husbandry, the maintenance and correct utilization of pastures, and the conservation and utilization of forests.

UTILIZATION OF LAND RESOURCES IN A SUITABLE AND BALANCED MANNER

31 - During the Fourth Plan, special attention will be paid to activities concerning soil study and soil protection, the prevention of rapid soil erosion, reclamation of potentially arable saline land, the execution of projects concerning the protection and regulation of basins and watersheds of rivers and dams so that a suitable and balanced system for utilizing land may be adopted.

Table 4 shows changes and initial progress in the five years of the Fourth Plan with regard to the method of land utilization insofaras the long-term target for suitable and balanced land utilization is concerned. As may be seen from this table, work will be done during the Fourth Plan to stabilize the area of pasture-land and forest, reduce fallow lands to provide a suitable and balanced system for the utilization of arable land and develop the trend towards intensive farming. The efforts and activities to be carried out during the Plan to ensure these objectives are:

a. the reduction in area of temporarily fallow land by means of rotating cereal cultivation with that of leguminous fodder crops, and other suitable crop rotations, optimum utilization of water resources and other essential activities.

b. the execution of detailed and semi-detailed soil studies, and studies and research in soil fertility to determine major and minor nutrition elements required by various crops and research into proper utilization of land on a larger scale than that of the Third Plan. For this purpose, the soil fertility project will continue and the number of areas under study as well as the number of soil laboratories will be increased.

c. the implementation of study and research concerning the protection and control of water-basins and watersheds, the prevention of soil erosion as well as the dangers of erosion by wind, which occurs in most parts of the country, the stabilization of sand-dunes and related matters, to be carried out by means of the following measures:

1. in view of the importance of soil protection, all activities at present carried out in this connection in a scattered manner will be centralized in one organization during the Fourth Plan. This organization, with due regard

TABLE 4 — LAND UTILIZATION AT THE BEGINNING AND END OF THE FOURTH PLAN (THOUSANDS OF HECTARES)

Type of Land Utilization	1346 (end of Third Plan)		1351 (end of Fourth Plan)	
	Area	Percentage of total land area of country	Area	Percentage of total land area of country
1. Total land under cultivation including:	19,000	11.5	19,000	11.5
a) Area under annual and permanent cultivation	7,100	—	7,650	—
Area under irrigated cultivation	(3,150)	—	(3,450)	—
Area prepared for cultivation beneath dams	—	—	(100)	—
Area under dry farming	(3,950)	—	(4,100)	—
b) Area temporarily fallow	11,900	—	11,350	—
2. Permanent pastures and meadows(1)	10,000	6.1	10,000	6.1
3. Forests and copses(2)	19,000	11.5	19,000	11.5
4. Uncultivated land capable of reclamation and development(3)	31,000	18.8	31,000	18.8
5. Uncultivatable land (mountains, deserts, lakes, swamps, cities, roads etc.)	86,000	52.1	86,000	52.1
Total	165,000	100	165,000	100

(1) Only includes relatively good pasture-land.
(2) Part of these forests and copses is also permanent pastures.
(3) Part of these areas is presently in use as second and third class pastures.

for priorities in vulnerable areas and the intensity of soil erosion, will set up and execute regional and local soil-protection programmes in order to prevent soil erosion through the construction of wind-breakers, the stabilizing of mobile sand-dunes and the control of water-basins.

ii. a properly-equipped systematic distribution network will be established by the co-operative societies or directly by the National Iranian Oil Company for the distribution of kerosine to villages and remote areas so that the local inhabitants, realizing the danger of cutting down bushes and natural vegetation, use kerosine for heating and cooking purposes instead of burning bushes and animal manure, which instead can be used to improve the soil.

iii. by executing existing laws and regulations, and enacting new ones, the over-grazing and conversion into arable land of pastures will be prevented.

d. The problem of salinity of arable land, which is one of the most important problems facing Iran's agriculture, will be more extensively considered during the Fourth Plan, and once the most economical way of improving and desalinizing land is found, large-scale drainage measures will be carried out with the technical and financial support of the Government.

32 - Better Utilization of Water Resources:
The necessary studies and research will be carried out during the Plan period to determine the best methods of irrigation. Existing projects at Hamadan, Kermanshah, Karaj, Safiabad and the Mohammad Reza Shah Pahlavi dam will be expanded and similar work will be started in several other areas. To determine the effects of spray irrigation, experiments will be carried out in some dry-farming areas.

In order to prevent water wastage, steps will be taken to cover streams and irrigation canals and to repair, maintain and expand irrigation networks. In this respect, in addition to the limited research at present being undertaken to determine the best system for covering streams in three areas, Varamin, Hamadan and Gorgan, work will be started in four other areas. In addition, the experience obtained already from the experiments in some areas will be put into use.

As regards the levelling and draining of land, ten grading units, capable of treating 75 to 100 thousand hectares of land a year, will be established during the Plan period.

33 - Mechanization of Agriculture - During the Plan period, in view of the limited use of machinery in the present agricultural system and the need to develop large mechanized farms, the question of expanding mechanization will be studied. This programme will be drawn up on the basis of the following executive policies:

a. During the first year of the Plan 3,000 tractors will be purchased and resold to farmers on instalments over a six-year period. In the second and third years, steps will be taken to establish an assembly plant with an annual capacity of 3000 to 5000 units. In the last years of the Plan, the assembly plant will be converted into a manufacturing plant and 5000 tractors will be manufactured annually for domestic use.

It is forecast that during the Plan period, a total of about 20,000 tractors and 1,000 combine-harvesters will be sold in the country. This will raise the number of tractors in use, which will be about 17,500 at the beginning of the Plan, to about 24,000 at the end of the Plan, after allowing for replacements. This represents an increase in the number of tractors in use of about 40 per cent.

b. Imports of agricultural implements (such as disc-harrows, ploughs, seed drills, etc.) will continue up to 1349 and, thereafter, about 10,000 tons of agricultural implements will be manufactured at Arak Machine Tool Factory for the domestic market.

c. The Institute for the Expansion of Agricultural Machinery, which is at present responsible for developing mechanized agriculture, will, as hitherto, continue its activities during the Fourth Plan and will take steps to promote mechanization and to supervise and equip repair shops, and other essential activities. In addition to its general supervision of matters connected with the expansion and sale of tractors, the Institute will, during the Plan period, establish first-class repair shops and mobile repair units in appropriate areas so that major repairs may be carried out by expert mechanics.

Simultaneously with these activities, proper attention will be paid to important problems facing the expansion of mechanization, such as the training of technical personnel (drivers, mechanics, etc.) and the provision of high-quality low-cost spare parts.

d. Another general policy during the Plan period will be the carrying out of necessary research to replace draught animals by simple equipment in every way superior to that used at present.

EXPANSION OF THE USE OF ANIMAL AND CHEMICAL FERTILIZERS

34 - In view of the importance of animal manure in fertilizing the soil and improving the physical structure of arable soil, it is necessary that serious steps are taken to prevent animal manure from being burnt. For this purpose, in addition to the expansion of distribution networks of charcoal and kerosine and the promotion of kerosine-burning stoves so as to encourage the use of kerosine as fuel instead of animal manure, demonstration units must be established for instructing how animal droppings should be collected. Credit facilities should be allocated to farmers who observe these methods. It is

also necessary for steps to be taken to develop the use of vegetative compost in areas where the climatic conditions are suitable. The experiences and experiments of the Third Plan with regard to the effects of chemical fertilizers in increasing production have shown that the use of chemical fertilizers is the easiest and most economical way of achieving this goal. In view of the importance of using chemical fertilizers, it is estimated that such use will increase from 130,000 tons at the end of the Third Plan to 350,000 tons at the end of the Fourth Plan, an increase of 170 per cent. Table 5 shows the level of consumption of fertilizers on various crops during the Fourth Plan period.

The executive policies for achieving the targets set for the consumption of chemical fertilizers are as follows:

a. The chemical fertilizer plant at Marvdasht will be operated at full capacity and in particular the production of ammonium nitrate will be replaced by that of

TABLE 5 — FERTILIZER CONSUMPTION DURING THE FOURTH PLAN

Type of Products	Consumption (kilogrammes per hectare)(1)	1347		1348		1349		1350		1351	
		Consumption area (hectares)	Total Consumption (tons)	Consumption area (hectares)	Total Consumption (tons)	Consumption area (hectares)	Total Consumption (tons)	Consumption area (hectares)	Total Consumption (tons)	Consumption area (hectares)	Total Consumption (tons)
Wheat	130	150,000	19,500	200,000	26,000	275,000	35,750	375,000	48,750	500,000	65,000
Barley	130	6,500	845	10,000	1,300	15,000	1,950	20,000	2,600	25,000	3,750
Rice	250	100,000	25,000	120,000	30,000	145,000	36,250	170,000	42,500	200,000	50,000
Cotton	300	40,000	12,000	50,000	15,000	65,000	19,500	80,000	24,000	100,000	30,000
Sugar beet	450	60,000	27,000	70,000	31,500	85,000	38,250	100,000	45,000	120,000	54,000
Sugar cane	400	4,500	1,800	5,000	2,000	6,000	2,400	7,500	3,000	9,000	4,000
Vegetables, Jaliz (2)	450	45,000	20,250	50,000	22,500	60,000	27,000	75,000	33,750	90,000	40,500
Cereals	250	17,500	4,375	22,500	5,625	27,500	6,875	35,000	8,750	40,000	10,000
Fruit — permanent crop	400	40,000	16,000	45,000	18,000	50,000	20,000	55,000	22,000	60,000	24,000
Tea	500	12,500	6,250	15,000	7,500	17,500	8,750	20,000	10,000	25,000	12,500
Tobacco	250	5,000	1,250	6,000	1,500	7,500	1,875	9,500	2,375	12,000	3,000
Oil seeds	250	25,000	6,250	40,000	10,000	60,000	15,000	75,000	18,750	95,000	24,000
Fodder crops	300	15,000	4,500	25,000	7,500	35,000	10,500	45,000	13,500	60,000	18,000
Other irrigated crops	250	20,000	5,000	25,000	6,250	30,000	7,500	40,000	10,000	50,000	12,000
Total	—	541,000	150,020	683,500	184,675	878,500	231,600	1,107,000	284,975	1,386,000	351,250

(1) These figures are for average consumption of fertilizer per hectare.

(2) See footnote to Table 1.

the "20-20" compound fertilizer which is very popular in Iran;

b. So long as domestic production is insufficient to meet the country's requirements, the import of chemical fertilizers, in particular phosphates and compounds, will be allowed under Government supervision. The purpose of Government supervision is to prevent the import of non-useful fertilizers as well as to stabilize prices;

c. With regard to the distribution of fertilizers, the organization of institutions at present responsible for such distribution will be reviewed, so that by using co-operative societies, kerosine sales branches and any other private or public sector facilities, a well-equipped network will be created to distribute fertilizers so that farmers receive their requirements at the right time;

d. In view of the need to establish well-equipped warehouses - both small and large - for the storage of fertilizers, in addition to investment by the public sector, use will be made of the capabilities of fertilizer manufacturers, co-operative societies and sales agents;

e. Extension programmes, to demonstrate the advantages of using fertilizers on farms, will be conducted on a more extensive basis. In addition, intensive short-term training courses will be established for sales agents with the financial and technical aid of the fertilizer manufacturers and Agricultural Extension Services Organization;

f. In order to ensure a rapid increase in the consumption of fertilizers in the country, the basic policy will be to set the price of fertilizers at a minimum so that farmers are encouraged to use them;

g. The organizations that are set up to encourage the production of specific products will continue to allocate short-term credits. In addition, in order to provide credits for the purpose of financing the sale of fertilizers to farmers, each year an amount will be allocated out of the seasonal credits of the Agricultural Bank and the Central Organization for Rural Co-operatives.

35 - Plant Protection - The aims of executing the plant protection programme are: first, to identify pests and diseases that attack plants and to find ways of controlling them; secondly to reduce substantially damage caused to crops by controlling and preventing these pests and diseases; thirdly to prevent plant diseases entering the country from abroad or from spreading from affected areas to clean areas.

In order to achieve these aims, the control of pests which is beyond the means of individuals and private institutions, such as that of sea-locusts, Moroccan locusts, rats and aphides, will continue to be the responsibility of the Government. In respect of simpler pests, the Government will train the private sector and provide the means for control, including pesticides and sprayers. Furthermore, in areas where, owing to insufficient knowlege, people do not believe in pest control or, in exceptional cases, where, due to lack of capital, farmers are not willing to participate in pest control, such control will be carried out on a demonstration basis free of charge. It is envisaged that during the Plan, pest control measures will be carried out on a total of 500,000 hectare against Moroccan locusts, on 450,000 hectares against native locusts, on 1,000,000 hectares against sea-locusts, on 400,000 hectares against aphides, on 800,000 hectares against rats, on 30,000 hectares against pests and diseases in forests and on 420,000 hectares against cotton pests. In the same period, spraying will be carried out on 8 million date palms and 250,000 olive trees. The executive policies for plant pests and disease control programme are as follows:

a. the provision of means, equipment and personnel for full execution of plant protection laws;

b. the establishment of auxiliary technical corps in each district and the training of farmers in pest control measures;

c. the enactment and execution of quarantine regulations at ports of entry, airports and frontier posts and the establishment of four additional quarantine teams equipped with sterilizing equipment, and of a quarantine laboratory in Tehran;

d. an increase in the number of spraying aircraft from 30 to 50 units by the end of the Fourth Plan including the replacement of old units;

e. the training of personnel required for the administration of aircraft spraying and the improvement of Ghazvin airport;

f. improving the Evin Pest Control Institute in terms of technical personnel, equipment and the expansion of its activities to identify unknown pests and to determine the use of the best pesticides, sprayers and other equipment;

g. the completion of the required training of the employees engaged in various plant protection, pest control and quarantine activities;

h. the general policy is that the co-operative societies should independently undertake the provision of pesticides, sprayers, etc., and make them available to farmers on a credit basis. Furthermore, pest control units should be established in rural areas and within the framework of private companies and in the first years of their operations they should be provided with technical and financial aid and pest control experts should be assigned to them free of charge.

36 - Supply and distribution of improved saplings and seeds. The supply of high-quality saplings and seeds will be among the major activities of the Fourth Plan.

Research and experimental projects will be expanded throughout the country to determine the best varieties of saplings and seeds. In pursuance of the general policy of gradually turning over the supply of these items to the private sector, improved seeds and saplings produced and tested in Government farms will be supplied to qualified co-operative societies, joint stock companies, individuals and organizations for reprodution and distribution under the supervision of technicians. Where necessary, financial aid will also be given to ensure that a proper distribution network is created throughout the country and high-quality seeds and saplings are made available to consumers at fair prices.

In pursuit of the foregoing objectives, the following activities will be carried out:

a. The present law and regulations of the Seed Improvement Institute will be revised in order to afford the Institute greater freedom in carrying out its duties.

b. The 28 small stations with insufficient land for effective research work on seeds and saplings will be sold, or the land assigned to them trasferred to other Governmental organizations.

c. The 28 agricultural stations which are not yet properly equipped to carry out the projects for which they are intended will be completed.

d. Nine new stations will be established in important agricultural regions.

e. About 140 hectares of sapling nurseries will be established and about five million saplings will be distributed during the Plan period. Further supervision will also be provided in connection with grafted saplings belonging to the private sector.

Table 6 shows the quantities of seeds and saplings that will be produced by the Seed Improvement Institute of the Ministry of Agriculture in the last year of the Plan as compared with 1346.

37 - Land Reform - During the Third Plan, the first and second phases of the Land Reform law were successfully carried out. Since speed of action was the main factor in the progress of the project, such activities as mapping, determining the minimum acreage for an economically viable farming unit and other technical matters were postponed for a later stage.

During the Fourth Plan, in order to establish the principles of management at the rural level, promote the use of modern agricultural machinery and equipment, bring about rural renovation and prevent the fragmentation of land upon the farmer's death or retirement, sustained and sound steps will be taken for the establishment and expansion of co-operative societies and for the efficient management of joint-stock companies.

TABLE 6 — CONSUMPTION AND SUPPLY OF IMPROVED SEEDS AND QUALITY SAPLINGS AT END OF THIRD AND FOURTH PLANS

Crop	Estimated Area of consumption and level of production of improved seeds and quality saplings			
	at the end of Third Plan 1346		at the end of Fourth Plan 1351	
	Area of consumption of improved seeds and saplings (hectares) (1)	Level of production of seeds (tons) and saplings (units)	Area of consumption of improved seeds and saplings (hectares) (1)	Level of production of seeds (tons) and saplings (units)
Wheat and barley	56,000	5,600	320,000	32,000
Rice	20,350	1,433	32,833	2,463
Cotton	60,000	3,000	264,000	13,200
Sugar cane	4,200	9,500	8,400	19,000
Sugar beet	82,500	3,600	117,500	4,000
Cereals (2)	—	—	60,000	2,000
Fruit and permanent crops	1,960	588	6,666	2,000
Tobacco	20,000	2	20,000	2
Fodder crops (alfalfa, lucerne, etc.)	250	5	2,500	50
Young forest saplings	—	—	10,000	3,000
Oil seeds (sesame, soya beans, sunflower, ground nuts)	2,000	500	95,000	2,300
Vegetables	—	340	—	4,200
Jute	1,750	35	8,000	200

(1) The figures for saplings are those for the public sector; the private sector produces several times as many.

(2) About one fifth pertains to barley.

In setting up joint-stock companies managed on the principle of co-operation and self-help, the policy will be, instead of giving the actual land to farmers outright, to give each farmer shares in proportion to the land and other factors of production which he contributes.

Setting up an agricultural production sharing system will give the following results: first, through the use of the experts and agricultural engineers now available, the management of marketing and production will be separated from ownership of land and become much more efficient; secondly, agricultural production, the purchase of equipment and the sale of products will be conducted on a much larger scale and in a more economical manner; and thirdly, the danger of division of farming units through inheritance and other factors will be removed.

Furthermore, the sale of land by owners who have chosen the system of lease or rent in the execution of the second phase of land reform will be encouraged, and those wishing to sell their farms to farmers will be granted facilities and advantages.

Among other activities to be performed during the Fourth Plan is the preparation of cadastral maps and the execution of various technical and economic surveys in several different areas in order to determine the minimum area which is economic as a farming unit.

38 - Extension of modern agricultural principles - Research and studies carried out can only be fruitful if their results are extended to villages and rural areas.

During the Fourth Plan, in addition to the continued execution of the Extension and Development Corps law and using agricultural engineers and specialists in the Agricultural Extension Organization, attention will be paid to making extension workers more efficient. For this purpose, in place of some of the present extension workers who, owing to insufficient education or other reasons are not capable of performing their important tasks, 200 agricultural graduates will be selected and recruited annually as extension workers.

In order to increase the level of knowledge among these extension workers and for practical training of young villagers, all agricultural training centres will be utilized. In other words, in these centres and also in villages and farms, depending on the type of farming and local crops, short courses will be established to give practical training to a number of farmers in modern agricultural principles. Furthermore, adequate credits will be allocated to supply extension workers and those serving in the Extension and Development Corps, with equipment, transport, audio-visual equipment and so on. In addition, the results of research will be broadcast by local radio stations.

39 - Agricultural Training - An essential factor in achieving the targets set in the Fourth Agriculture Plan, and in particular the correct utilization of investments in this field, is that a large number of skilled agricultural workers, technical foremen, technicians and agricultural engineers are trained and the level of knowledge of responsible personnel in this field is constantly increased. For this purpose, the programmes of training centres and agricultural colleges should be arranged so that they meet the technical needs of the country in the agricultural sector and a sufficient number of technicians should be trained. In order to achieve this objective, the Ministry of Agriculture will undertake to train technicians in various fields rather than teaching non-practical subjects to secondary school graduates. Furthermore, courses will be conducted to train mechanics and assistant-mechanics for farm machinery, livestock foremen, orchardmen, skilled farmers, row planters, repair workers, deep well technicians etc. In addition, special courses will be established to teach modern methods of agriculture, animal husbandry and livestock vaccination, to the children of farmers, and tribesmen.

Among other training activities to which attention will be paid under the Fourth Plan is the establishment of refresher courses in various agricultural fields for employees of the Ministry of Agriculture. (See Chapter Seventeen on Education).

40 - Agricultural Research — During the Fourth Plan, all activities concerning agricultural research work will be conducted on a larger scale. Furthermore, agricultural research programmes will be co-ordinated by the National Scientific Research Institute affiliated to the Ministry of Science and Higher Education in all organizations active in these lines whether they are Government organizations, colleges or private establishments.

Instead of scientific research being undertaken in various separate units, all research activities concerning farming, gardening, plant improvement, pest and disease control, soil fertility and related fields, will be centralized in a unified organization. Furthermore, research workers will be granted certain benefits and privileges so that in future those talented in research work may devote themselves to research instead of accepting administrative posts which until now has ensured them such benefits.

41 - Rural economy and the marketing of agricultural products. The supply and demand of agricultural products has not so far been handled in an orderly manner in keeping with the development of the country in recent years; nor has the distribution of various farming and livestock products been conducted in a logical and

equitable fashion in the various stages from production to consumption. Available statistics reveal that an appreciable part of such products is wasted during various stages of production and distribution, which imposes a heavy loss on the economy and those to benefit from it. Equally, most products are expensive for consumers while the income of producers of these products is so low that they are in no way encouraged to increase production.

During the Fourth Plan the following essential steps will be taken to improve marketing and the agricultural economy:

a. A marketing organization will be established to carry out studies and gather accurate data, as well as to teach and propagate modern marketing principles;

b. The Agricultural Statistics and Economic Research Bureau will be provided with technicians and equipment;

c. Organizations and companies investing in the proper supply, storage and transportation of agricultural and livestock products will be given technical aid and allocated credits;

d. The capacity of silo storage in the country will be increased to at least 500,000 tons;

e. Regulations and bye-laws required for the marketing of agricultural and animal products and the sorting and packaging of these products according to recognized standards will be drawn up. Furthermore, the Institute of Standards and Industrial Research will be strengthened so that it can draw up appropriate standards for agricultural and animal products, both for domestic consumption and export;

f. Demonstration co-operative societies consisting of producers of some important agricultural and animal products will be organized. Producers wishing to set up such societies will be given the necessary credit facilities and technical aid;

g. Livestock fattening centres associated with meat and livestock markets will be established in suitable areas.

42 - Agricultural credits - During the Fourth Plan, the question of increasing the volume of agricultural credits will be given special attention, and the sum of Rials 14 billion will be allocated to producers for the execution of production projects by the Agricultural Bank, the Central Organization for Rural Co-operatives and other Government credit organizations. Considering the need to increase meat production and other animal products, unprecedented facilities will be made available during the Fourth Plan in terms of allocating credits for livestock fattening, fodder cultivation, milk production, pisciculture and other essential livestock activities. It is envisaged that of this sum, Rials 6.5 billion will be allocated to animal husbandry and in making loans, the following general policies will be carried out:

a. In areas where producers' co-operative societies or joint-stock agricultural companies are established, priority will be given to these organizations;

b. An Agricultural Development Fund will be established and will be strengthened financially and technically so as to meet the credit requirements of the private sector for the development of virgin land and the execution of large-scale major projects;

c. In order to encourage farmers to save and effect economies and to attract such savings to productive activities, certain measures will be adopted, including the granting of certain facilities to farmers who undertake to provide the major part of the expenditure involved in the project in question;

d. In order to ensure the proper utilization of credits, a major part of the credits will be made available to co-operatives and individuals in kind and in the form of means of production such as high-quality seed, fertilizers, pesticides, machinery and equipment;

e. Co-operative training programmes for employees and farmers who are members of co-operative societies and training them in co-operative principles will be given even greater attention than before;

f. In the expansion of the network of co-operative societies, quality will be given greater consideration than quantity. In other words, through the correct execution of co-operative training programmes and also by integrating small co-operative societies with those of nearby villages and increasing their membership, efforts will be made to transform existing and future societies into stronger economic units with greater capabilities, thus preventing, as far as possible, their administrative expenses from increasing.

In addition to the above-mentioned 14 billion-Rial credit allocation provided by governmental credit organizations to the private sector an additional sum of Rials 7 billion will be allocated by special organizations for increasing or improving agricultural and animal husbandry production.

43 - Animal husbandry - The most important activities to be carried out during the Fourth Plan in improving the state of animal husbandry will be in the following three fields:

a. Provision of livestock feed. In order to provide livestock feed and sufficient fodder the following steps will be taken:

i. the introduction of fodder plants into the agricultural cycle and the expansion of the area under such cultivation throughout the country, by allocating technical and financial aid, as well as by distributing the necessary seeds and encouraging stock-farmers to store fodder in years when they have surplus production;

ii. The correct utilization of surplus agricultural products such as sugar beet pulp and molasses, oil cakes, blood, bones, etc., by encouraging industrialists to invest in the production of concentrated food and by encouraging stock-farmers to use them.

b. Improvments in actual stock and in methods of animal husbandry. One of the most important problems of animal husbandry in Iran is the lack of high-quality stock and the failure to use proper methods of animal husbandry.

In order to solve this problem, the following steps will be taken during the Fourth Plan:

i. A well-equipped central artificial insemination unit will be established to produce and distribute frozen sperm, using liquid nitrogen, and the number of artificial inseminations carried out will increase from 30,000 per year at the beginning of the Plan to 60,000 by the end of the Plan;

ii. Activities concerning record-keeping, milk hygiene, barn-construction, increase in the fertility rate and the purchase and sale of pedigree male calves, which have been carried out in Tehran during the Third Plan, will be extended to ten more potential cattle centres;

iii. In ten suitable cattle regions, steps will be taken, in conjunction with the private sector, to establish dairy industries and in order to provide them with milk supply, the maximum possible financial and technical aid will be provided for the establishment of modern live-stock units in these centres;

iv. Centres for breeding pedigree rams, which are presently four in number, will be increased to 14 and the number of rams distributed at each centre will be increased to three times the present level by the end of the Plan. In addition, shepherds will be encouraged to create centres for breeding and distributing high-quality rams for other sheep-farmers;

v. By using the experience gained and in order to extend modern fattening methods, 300 fattening centres will be established in suitable areas in the country and the results obtained will be made available to stock-farmers. In order to propagate fattening methods among stock-farmers by means of granting loans and technical assistance, extensive measures will be taken. It is envisaged that by the end of the Plan the private sector will raise 3 million sheep and goats and 250,000 cattle per year under the fattening system;

vi. In order to improve rural dairy products, small production units for butter, cheese and other dairy products will be established. Comprehensive measures will also be carried out for the conservation and storage of these products under suitable hygienic conditions as well as to facilitate the marketing of them;

vii. If, in spite of the facilities foreseen, investment by the private sector should not prove sufficient to achieve the intended targets, then large livestock units will be formed by the Government;

viii. In order to continue livestock research on a more extensive basis, the Heydarabad centre will be provided with technical personnel and equipment and other stations will be similarly equipped in accordance with the needs of the research programmes;

ix. In view of private sector interest in investing in poultry farms, the activities of the public sector in this field will be limited to the supply and distribution of poultry feed at low cost, and to market control;

x. For the improvement and expansion of Iran's apiculture, by bringing it into line with modern agricultural practice, measures will be taken to double the number of Government-owned bee-keeping centres in the country;

xi. In order to develop pisciculture in the rivers of the country and to encourage the public to invest in this field, technical and financial assistance will be provided;
xii. In suitable areas, measures will be taken to encourage the cultivation of silk worms and mulberry trees.

c. Control of livestock disease. During the Fourth Plan, extensive measures will be taken to control parasitic and contagious diseases in livestock, which may be summarized as follows:

i. In order to control anthrax and smallpox completely, inoculation against these diseases will be increased from 20 million to 90 million shots during the Plan. For this purpose, in addition to the services rendered by the Extension and Development Corps and agricultural extension workers, tribal youths and stock-farmers themselves will be trained. The present veterinary personnel will be strengthened and provided with the necessary equipment and mobile units.

ii. Parasitic pest control will be carried out extensively, and at the beginning of the Plan pesticides and medicaments will be supplied to stock-farmers free of charge. Once they become familiar with the advantages thereof in pest control, the cost price will gradually be collected from them. It is envisaged that during the Plan the consumption of antiparasitic medicaments will be increased from 9 million to 30 million units.

iii. The control of bovine brucellosis and tuberculosis will be continued in infected areas. In Tehran, bovine tuberculosis will be eradicated within a radius of 60 kilometres. While areas infected with brucellosis are being identified, this disease will be controlled in the provinces of Tehran, Esfahan, Fars and Khorasan.

iv. Measures will be taken to equip fully 20 existing veterinary clinics, and at the same time 20 new clinics will be established in centres of animal husbandry. Furthermore, livestock quarantine posts will be set up at ports of entry and at frontier points.

v. The activities of the Razi Institute will be strengthened in the fields of research and the diagnosis and control of diseases. Also the production of the medicaments and vaccines required will be expanded throughout the country. It is envisaged that the production of the Institute, which in the first year of the Plan will amount to about 70 million livestock vaccine units, 60 million poultry vaccine units, 300,000 antigens of various types and 10 million pharmaceutical units, will increase by 20 per cent annually.

44 - Maintenance and correct utilization of pastures - Statistics indicate that the total area of pasture-land is about 50 million hectares, of which 10 million hectares are good pasture-land, 10 million hectares are forest pastures, and the remainder is land with extremely sparse vegetation, insufficient for the grazing of existing livestock. During the Fourth Plan period, in addition to the utilization of cultivated fodder and other existing sources of animal feed, measures will be taken to improve and maintain pasture-land, and utilize it properly by making the maximum use of all existing possibilities, in particular by seeking the participation and co-opertion of the public. Furthermore, the following measures will be taken:

a. the identification of pasture-land by means of aerial surveys and the preparation of pilot projects for pasture conservation, and the implementation of such projects over a one-million hectare area:

b. the renovation of desert pasture-land in 5 regions by seeding and planting saplings in special reserves;

c. the investigation of pasture-land problems, the gathering of seeds of varieties of domestic plants and the importing of seeds to be reproduced and sown in suitable locations;

d. the establishment of facilities in pasture-lands required by stock-farmers such as the construction of shelters, watering points, and so on;

e. the sowing of pastures with suitable seed in appropriate locations over a total area of 100,000 hectares during the Plan period.

45 - Conservation and utilization of forests. Forests play an important role in the agricultural economy of Iran. Although, only one eighth of one per cent of agricultural income is derived from forest resources, and the export of forest produce, including timber, is only one per cent of the country's total exports, Iran's forest resources are nevertheless capable of providing considerably greater income than they do at present.

According to available statistics, about 11 per cent, or 19 million hectares of the total area of the country is identified as forest (good forest, decayed forest and shrub-lands). Approximately 2.4 million hectares of this total consists of the northern and Caspian littoral forest regions, of which 800,000 hectares may be considered among the best deciduous forest in the world. The total volume of timber in the northern forests is estimated at 533 million cubic metres and this natural resource is capable of producing annually 3 to 3.5 million cubic metres of timber. At present annual production does not exceed 500,000 cubic metres. Apart from the Caspian region, in other regions of the country there exist 10 million hectares of oak, 200,000 hectares of juniper and 2.4 million hectares of wild pistachio. Although at present these trees cannot be utilized for timber, they are of great value from other economic standpoints, such as for supplying firewood and especially for the prevention of soil erosion.

During the Fourth Plan period, the main objectives will be the identification, preservation and correct utilization of forests, the renovation of decayed forests and creation of new forests. In order to achieve these targets, the following measures will be carried out:

a. The number of guards of the Forestry Organization will be increased and residential quarters will be built for them in forest areas, and forestry conservation posts will be established and well-equipped;

b. As regards the supply of saplings and sylviculture, it is envisaged that during the Plan period a total of 15 million saplings will be supplied from existing and new nurseries, which will be planted over 15,000 hectares of forest. Furthermore, in the outskirts of some of the large cities, such as Tehran, Shiraz, Ahwaz, Tabriz and Kerman, forest parks and recreation grounds will be established with the assistance of municipalities;

c. Measures for the utilization of forests at present performed directly by the Forestry Organization will be expanded in accordance with projects already undertaken, and special attention will be paid during the Fourth Plan to the preparation of new forest utilization projects and the accurate supervision of their implementation. The joint project agreement for the expansion and development of the northern region forests which was entered into with the U.N. Joint Fund will be executed;

d. In order to encourage and expand the timber industry measures will be adopted so that the raw materials for the industry are supplied at economic rates;

e. The investigation of forestry problems, especially the selection of the best varieties of rapid-growth trees, will be carried out more intensively. For this purpose, deficiencies in the stations at Yazdabad, Esfahan and Nowshahr will be removed and new stations will be created at Rezaiyeh and other locations;

f. Model public parks will be created in suitable forest areas during the Fourth Plan period.

46 - Revision in the organization of executive bodies- In order to achieve the rapid and proper execution of the Fourth Plan, it was considered essential to review the organization and functions of national agricultural bodies even before the commencement of the Plan, distinguishing them from each other on the basis of their research, executive, service, credit and administrative functions and giving each one special powers, clearly defined terms of reference, and scientific and executive discipline. It is equally essential that executive organizations are henceforth staffed with experienced technicians and experts and that while the technical knowledge of these specialists is increased, these organizations can undertake the task of guiding agriculture properly and employing modern agriculture methods.

DISTRIBUTION OF DEVELOPMENT FUNDS

47 - In order to implement the above-mentioned programmes and achieve the agricultural and animal husbandry production targets, a total of 65 billion Rials is to be allocated from development funds. This sum is apart from current agricultural expenditure arising from the execution of the Third Agricultural Plan which has been transferred to the ordinary Government budget.

In addition to the above allocations, in the Plans of other chapters such as the development of water resources, rural development and feeder roads, regional development and so on, certain credits have been allocated, all of which will to some extent affect agricultural development. (See Table 7.)

TABLE 7 — DISTRIBUTION OF DEVELOPMENT CREDITS OF THE AGRICULTURAL AND ANIMAL HUSBANDRY SECTOR DURING THE FOURTH PLAN

Title of Programmes	Total credits (Millions of Rials)	Amount Granted to private sector (Millions of Rials)
Part 1 — **Conservation of natural resources**	(6,500)	
Protection of soil and water basins	1,500	
Soil and fertility studies	500	
Prevention of soil erosion and sand stabilization	500	
Forests	2,200	
Pastures	1,800	
Part 2 — **Establishment of large agricultural units**	(11,000)	
Agricultural activities in development areas	4,000	
Establishment of large farming and livestock units	7,000	
Part 3 — **Agricultural credits**	(14,000)	14,000
Short-term loans	6,000	
Medium-term loans	4,000	
Long-term loans	4,000	
Part 4 — **Agricultural services**	(6,000)	1,200
Agricultural engineering	1,500	
Plant pest and disease control	1,500	
Agricultural extension	1,500	
Distribution of chemical fertilizers	1,000	
Agricultural mechanization	500	
Part 5 — **Improvement of agricultural production and cultivation**	(7,000)	4,250
Grains	2,100	
Tobacco	230	
Tea	800	
Cereals	70	
Cotton and oil seeds	1,700	
Sugar beet	1,200	
Sugar cane	900	
Part 6 — **Animal husbandry and veterinary services**	(7,000)	1,000
Veterinary services — Razi Institute	4,000	
Animal husbandry	2,950	
Fresh-water pisciculture	50	
Part 7 — **Marketing**	(5,500)	150
Marketing	500	
Silos	4,800	
Warehouses	200	
Part 8 — **Research and studies**	(4,000)	400
Pest studies	800	
Seed and sapling improvement	2,500	
Survey of rural economy and statistics	400	
Special research	300	
Part 9 — **Land Reform**	(4,000)	
Total	65,000	21,000

CHAPTER 8

INDUSTRY AND MINING

INTRODUCTION

1 - In terms of industrial growth countries can be divided into three categories:

First, the industrially developed countries, where industry accounts for over 25 per cent of Gross National Product;

Second, the developing nations, whose industries account for 15 to 25 per cent of Gross National Product;

Third, the under-developed countries where industry accounts for less than 15 per cent of Gross National Product.

Excluding the oil industry, Iran just falls within the second of the above categories.

2 - The following points show how important industrial development is in the Iranian economy as a whole:

a. In this era of industrialization, advanced technology is undoubtedly a vital feature of a nation's economic strength, and it is only with a thriving industry that modern techniques can be adopted or developed. Moreover, labour productivity is naturally greater in industry than in agriculture so that industrial development makes a larger contribution to increasing the national income.

b. The rapid expansion of agricultural production in order to meet the nation's food requirements and the industrial demand for raw materials also call for the adoption of up-to-date production methods, including modern machinery, the use of chemical fertilizers, modern irrigation techniques and new skills. These elements can only be supplied by an active and thriving industrial society.

c. The greater emphasis placed on industrial expansion is justified by the structural difficulties which impede the increase of agricultural production and the relative ease of industrial investment, coupled with the need for promoting productive activities as a means of improving overall living standards.

d. The existence of overt and concealed unemployment in the agriculture sector and the ever-increasing drift from the land to the towns mean that the manpower so released must be absorbed by industry. Industrialization as a whole can thus be considered one of the most efficient means of absorbing surplus manpower.

e. Industrial diversification and increased exports to reduce the country's economic dependence on oil is one of the lynch-pins of Iranian plans for the future; the rapid expansion of the industrial sector is the natural corollary to this trend.

f. In a booming economy, the demand for manufactured goods will rise faster than that for agricultural products. Inadequate attention to industrial growth might result in an excessive volume of imports.

g. Generally speaking, the relative scope for mobilizing and pooling the savings in large-scale industries is greater than in agriculture. If greater emphasis is placed on industry, therefore, savings will be all the greater, so that the net result will be a higher domestic investment.

A REVIEW OF THE INDUSTRIAL SECTOR TO DATE

3 - The basic objective of the industrial sector under the Third Plan was to develop those industries which would make the maximum contribution to the national income. The secondary target was to improve the country's employment figures, effect greater savings in foreign exchange and facilitate a more equitable distribution of income among various social groups. The Third Plan also clearly emphasized that the Government

should invest directly only in those industries in which the private sector was unable, for technical or financial reasons, to make any commitment.

It was estimated that capital investment in industry during the Third Plan would amount to about Rials 65 billion, of which the private sector's investment share was to be Rials 30 billion, the public sector's share being Rials 34.5 billion.

4 - In practical terms the investments made in the industry and mining sector under the Third Development Plan exceeded the original estimates. Together, the public sector and the private sector will have made a total investment of 70 billion Rials in industry and mining by the end of 1346. Of this sum, Rials 46 billion was invested by the private sector and 24 billion Rials by Plan Organization. Private investment therefore exceeded that originally provided for by the Third Plan by 50 per cent. At the start of the Third Plan, it was recommended that Government intervention should be confined to a few basic industries and to investments in projects which, for one reason or another, fall outside the private sector. In practice, however, the Government, in addition to laying the foundations of future basic industries, by providing effective assistance to and even participating in private industry, also spurred the private sector to greater industrial investments during the Third Plan.

The Third Plan stressed the development of small-scale and medium-scale industries, and in the field of heavy industries, began the preliminary stages of setting up the steel, petrochemical, machine tool, aluminium, tractor and pipe-manufacturing industries.

5 - At the start of the Third Plan the private sector, owing to economic stagnation, did not show much inclination towards making new investments. But from the end of 1342 private investment started picking up at an unprecedented rate. In this revitalized activity the assistance provided by Plan Organization and the industrial banks played an important role. The policy of the Government in encouraging and protecting the private sector resulted in increased confidence on the part of private investors who channelled their savings into the industrial sector.

6 - During the Third Plan period the Government's policies for industrial expansion were as follows:

Protecting domestic industries by restricting the import of goods similar to those manufactured at home; exempting customs duties on machinery, equipment, spare parts and raw materials essential for domestic industry; tax exemptions; encouraging exports; encouraging foreign investment; granting credit facilities and long-term loans and equity participation through the Industrial and Mining Development Bank of Iran, the Industrial Credit Bank and the Industrial Guarantee Fund; establishing vocational schools and industrial colleges; on-the-job training of workers, technicians and engineers; training in industrial management, industrial accounting and related fields, providing technical assistance and facilities by employing Iranian and foreign technicians; preparing feasibility studies; establishment of industrial laboratories and industrial poles.

7 - As a result of these efforts the range of manufactured goods produced by the private sector increased rapidly. This tendency paved the way for the export of a greater volume of manufactured goods, excluding oil products. During the period, the average annual rate of growth in the industrial sector, despite two years of economic stagnation, exceeded 12 per cent. The enterprise and investment of the private sector throughout the Third Plan were extremely important factors in providing greater employment opportunities. Although accurate statistical data are not available, preliminary calculations indicate that the employment target has been realized.

8 - Equally, the Third Plan has contributed to an improvement in the handicraft and cottage industries and the ruralization of the carpet industry. These industries have created further employment on a part-time basis and have brought about a more equitable distribution of income.

9 - The industries that have achieved the best rates of growth are:

Cotton and woollen textiles, metallurgy, cement, rubber products, automobile tyres, sugar and food-

TABLE 1 — GROWTH RATE IN SOME INDUSTRIES DURING THE THIRD PLAN*

	Industry	Production			Percentage increase in Plan period
		at start of Third Plan	Plan target	Achievement	
1	Cotton textiles (millions of metres)	304	430	450	48
2	Woollen textiles (millions of metres)	4.7	9	8.3	77
3	Cement (thousands of tons)	668	1,700	1,800	69
4	Vegetable oil (thousands of tons)	64.5	90	100	55
5	Sugar (thousands of tons)	131	315	320	44
6	Dried fruit (thousands of tons)	45	102	50	11
7	Dates (thousands of tons)	21	80	29	34
8	Carpets (millions of square metres)	1	1.6	4	300
9	Leather (thousands of tons)	5.7	17	6	5
10	Glass (thousands of tons)	9	43	25	178
11	Canned food (thousands of tons)	2	24	8	300

* These particular industries have been selected for comparison because specific objectives were indicated for them in the Third Plan.

stuffs, transport, electrical appliances, building materials and heavy industry.

BASIC PROBLEMS FACING THE RAPID GROWTH OF INDUSTRY AND MINING

10 - Despite the efforts made in the Second and Third Plans to industrialize the country and the successes achieved so far, the industry and mining sector still faces basic problems, some of which are enumerated below:-

a. Insufficient numbers of skilled workers, specialists, management experts and difficulties in employing foreign experts;

b. Legal problems regarding the protection of shareholders' rights that obstruct the re-direction of their savings into large-scale enterprises. Without large companies it is practically impossible to have large-scale industries flourishing in the private sector;

c. The inefficiency of some of the existing industrial enterprises, inadequacy of the profit ratio and improper utilization of machinery and equipment;

d. The lack of sufficient attention on the part of the private sector to technical and marketing studies, which are essential for the operation of efficient industrial enterprises. Without these studies, modern industry is faced with enormous dangers;

e. The absence of specialized institutions for advising and guiding investors in the field of small-scale industries;

f. Inadequate attention of factory-owners to improving their products and lowering prices. The absence of proper systems for controlling the quality of products so as to guarantee their conformity with international standards;

g. The shortage of operating capital for factories and the lack of adequate facilities and suitable regulations for making working capital loans to the private sector;

h. The unwillingness of private investors to invest outside the capital, resulting in a concentration of unbalanced credit facilities in Tehran;

i. Lack of clear-out legal procedures in the Labour Law to clarify the relationship between management and labour.

11 - The lack of adequate data regarding new mining resources is the main bottleneck to expanding the mining sector, as no complete survey has been carried out in the country. Therefore, all activities in the past have been confined to mines already in operation. Other factors against expanding mining activities are:

a. The unwillingness to invest in exploration ventures because of the need for a great deal of capital and the uncertainty of such investments;

b. The lack of adequate technical assistance in the fields of mining exploration and operation, which discourages private investors;

c. The inadequacy of credit facilities for making loans to mining operators at suitable rates of interest;

d. The lack of expertise in various mining fields in terms of advanced mining techniques;

e. The lack of sufficient infrastructure facilities for mining projects, such as roads, electricity and port facilities;

f. The lack of domestic as well as foreign investment on a large-scale basis;

g. Incongruity of organizational systems and existing rules and regulations for mining operations.

OVERALL OBJECTIVES OF INDUSTRY AND MINING SECTOR IN THE FOURTH PLAN

12 - Despite two years of economic stagnation in the Third Plan, the average annual growth in the industry and mining sector was over 12 per cent. Since work on large-scale Government projects began only in the latter part of the Third Plan, and since industrial expansion resulted from domestic investment and larger foreign investment, the objective of the industry and mining sector in the Fourth Plan is for the production value of the sector, which is expected to exceed Rials 187 billion by the end of Third Plan, to reach Rials 376 billion at the end of the Fourth Plan, and for the value added to increase from Rials 70 billion to Rials 129 billion. In order to reach this target, it is therefore essential that an average rate of growth of 15 per cent per year is obtained. As a result, the contribution of industry and mining to Gross National Product at the end of the Fourth Plan period will rise from 14.1 per cent to 17.3 per cent (see Tables 1 and 2).

With the implementation of industry and mining projects in the Fourth Plan, it is anticipated that approximately 400,000 jobs (80 per cent of them productive) will be created.

13 - The Fourth Plan is the first stage of a long-term programme to industrialize the country, the objective of which is to make the country independent of consumer goods and to manufacture capital and intermediate goods inside the country so as to minimize the volume of imports, and to diversify the export of locally manufactured goods to foreign countries. This will reduce the dependence of the economy on oil revenues.

14 - Among other basic objectives of the Fourth Plan is the maximum exploitation of locally available raw materials. It has been clearly emphasized that instead of exporting raw materials, they should be processed into intermediate or, if possible, finished goods and then exported.

INDUSTRIAL OBJECTIVES AND PROGRAMMES

15 - Industrial and mining objectives and programmes in the Fourth Plan are set out in Tables 2 and 4. The basic industries in these tables have been divided into 11 categories, and in each case the production targets to be achieved in the Fourth Plan are reflected and compared with those of the Third Plan.

MAJOR PROJECTS OF THE PUBLIC SECTOR

16 - The major public sector industrial projects in the Fourth Plan are as follows:

a. Steel Mill - Location: Esfahan. Its capacity during the first stage has been scheduled at about 600,000 tons

INDUSTRIAL PROJECTS IN THE FOURTH PLAN

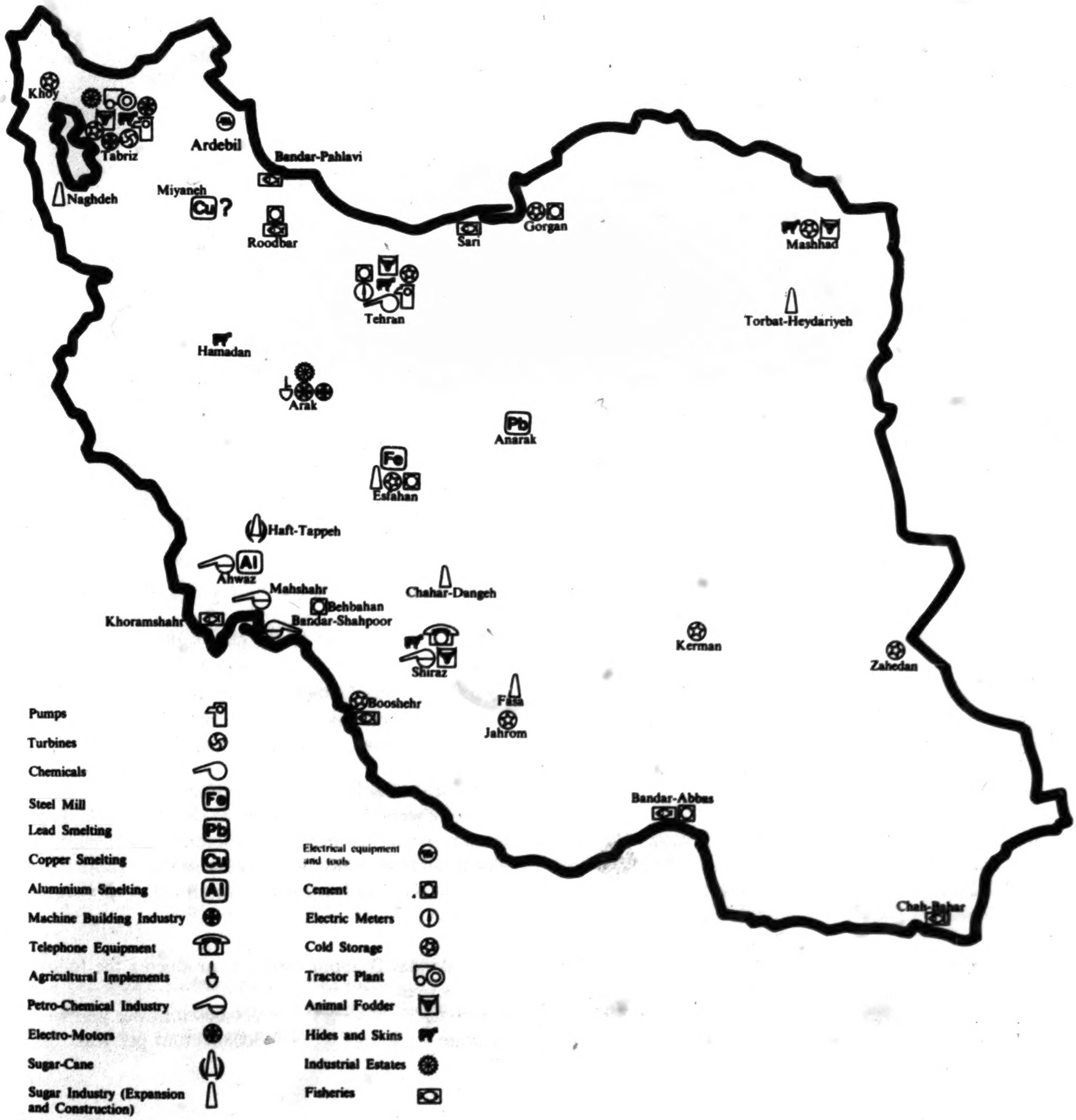
Khoy
Tabriz
Naghdeh
Ardebil
Miyaneh
Cu ?
Bandar-Pahlavi
Roodbar
Sari
Gorgan
Mashhad
Tehran
Torbat-Heydariyeh
Hamadan
Arak
Anarak
Esfahan
Haft-Tappeh
Ahwaz
Mahshahr
Behbahan
Chahar-Dangeh
Khoramshahr
Bandar-Shahpoor
Shiraz
Kerman
Zahedan
Booshehr
Fasa
Jahrom
Bandar-Abbas
Chah-Bahar
Pumps
Turbines
Chemicals
Steel Mill
Fe
Lead Smelting
Pb
Copper Smelting
Cu
Aluminium Smelting
Al
Machine Building Industry
Telephone Equipment
Agricultural Implements
Petro-Chemical Industry
Electro-Motors
Sugar-Cane
Sugar Industry (Expansion and Construction)
Electrical equipment and tools
Cement
Electric Meters
Cold Storage
Tractor Plant
Animal Fodder
Hides and Skins
Industrial Estates
Fisheries

TABLE 2 — TARGETS OF INDUSTRIAL AND MINING GROWTH BASED ON INDUSTRIAL AND MINING PRODUCTION VALUES
(MILLIONS OF RIALS)

	Industry	Production value				Ratio of production 1351 to 1344 (per cent)	Annual growth (per cent)
		1341	1344	1346	1351		
1	Food Processing and Tobacco	31,730	53,000	66,790	108,050	204	10.7
2	Textiles, Clothing and Leather	21,550	26,470	30,970	55,360	209	10.7
3	Base Metals and Metallic Products	6,360	16,740	18,410	37,460	224	12.1
4	Cellulose	2,890	7,070	8,300	16,300	231	12.7
5	Pharmaceuticals	340	570	900	4,000	702	32.0
6	Chemicals	4,230	13,050	14,270	17,270	132	4.2
7	Petrochemicals	—	300	640	29,730	991	38.8
8	Mechanical, Electrical Engineering & Vehicles	7,670	17,110	18,500	55,190	323	18.2
9	Non-metallic Minerals	5,250	9,398	10,990	20,380	217	11.7
10	Handicrafts and Carpets	4,110	11,460	12,240	20,148	176	8.4
11	Other Industries	282	846	1,033	3,150	372	20.7
Total		84,412	156,014	183,043	367,038	235	13.0
12	Mining	2,740	3,180	4,240	9,300	292	16.6
	Grand Total	87,152	159,194	187,283	376,338	236	13.1

N.B. - During the Fourth Plan, the annual rate of growth of industrial production, over that for 1346, will be 15 per cent and that of mining will be 17 per cent.

per year. It is anticipated that during the second phase, which is to commence at the end of the Fourth Plan, the capacity will be raised to 1.2 million tons per year. According to this schedule, the mill's products will be marketed in 1971.

b. Heavy metallurgical plant*- Location: Arak. Its capacity has been set at 30,000 tons per year. The products of this Plant will be used in agriculture, in industry and mining and also in urban construction.

c. Machine Tool plant*- Location: Tabriz. Its capacity has been set at approximately 10,000 tons per year. The products of this factory will consist of water pumps, small electric motors, machine-tools, diesel engines up to 27 horse-power, small compressors and presses.

d. Petrochemical Industry - In the Fourth Plan, two types of petrochemical projects will be implemented. First, those of which the preliminary studies have been completed, and on which work began in the Third Plan. These projects, as listed below, will become operational in 1348:

1. the Bandar Shahpur complex, producing the following products:

Ammonia	360,000 tons per year
Sulphur	360,000 tons per year

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* It will start operation in 1349.

Phosphoric acid	95,000 tons per year
Various kinds of nitrogen and phosphate mixed fertilizers	264,000 tons per year
Urea	180,000 tons per year

ii. the Abadan complex, producing the following:

Polyvinyl chloride	20,000 tons per year
Detergents	10,000 tons per year
Caustic soda	24,000 tons per year

iii. the Kharg complex, producing the following:

Sulphur	186,000 tons per year
Liquefied gas	1,850,000 tons per year

Meanwhile, other projects such as those for carbon black and tetraethyl lead are to be implemented in the course of the Fourth Plan.

The second group of petrochemical projects is made up of the following thirteen projects to be implemented in the course of the Fourth Plan:

-Expansion of Bandar Shahpur complex to produce melamine, glycol and ammonia with an annual capacity of 340,000 tons;

-Project No. 1 for urea production with an annual capacity of 164,000 tons;

-Insecticides;

-Sulphur production with an annual capacity of two million tons.

- Supplementary project No. 2 for urea with an annual capacity of 450,000 tons;

- Ethylene with a capacity to be determined later;

- Isoprene (synthetic rubber) with an annual capacity of 60,000 tons.

- Aromatics;

- Caprolactum project with an annual capacity of 20,000 tons for the production of nylon, with 86,000 tons of ammonium sulphate as a by-product;

- Carbon sulphide project with an annual capacity of 10,000 tons;

- Methanol (methyl alcohol) with an annual capacity of 180,000 tons.

e. Aluminium smelting plant - This factory is to be built in Khuzestan, with an annual capacity of 45,000 tons. It will produce aluminium ingots.

f. Tractor Factory - This factory, to be built in Tabriz, will assemble 5,000 tractors in its first phase. At a later stage all parts of the tractors are to be manufactured in the country.

g. Fisheries and Related Industries - In the course of the Fourth Plan, the Government will carry out some projects for the exploitation of marine resources in the Caspian Sea, Persian Gulf and the Sea of Oman. The aim is to raise the standard of living of the inhabitants in the coastal regions by creating industries connected with fisheries, in addition to securing food materials and exporting them.

h. Development of Defence Industries - Certain projects have been prepared and are to be implemented in the course of the Fourth Plan for the expansion of defence industries.

MAJOR PRIVATE SECTOR INDUSTRIAL PROJECTS

17 - During the Fourth Plan, the private sector will participate in the development of industrial activity of the country by investing in some basic industries. These industries are as follows:

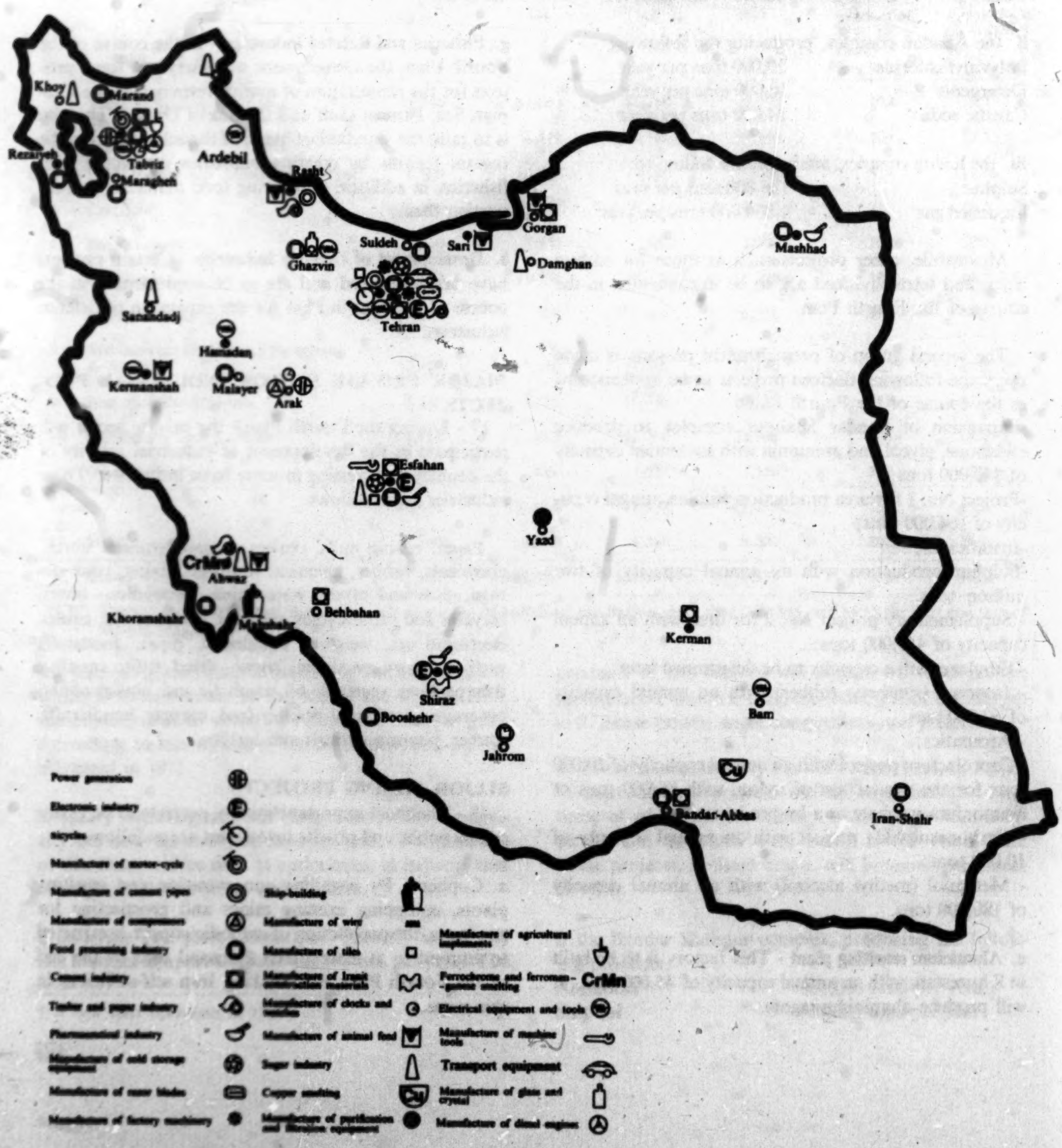
Paper, rolling mills, cement, viscose artificial fibres, chemicals, rubber, chemical fertilizer mixing, cold storage, glass and crystal ware, china, electronics, filters, bicycles and motorcycles, vehicles, compressors, cables, electromotors, weighing equipment, pipes, foodstuffs such as dairy products, sugar, dried fruit, canning, date packing, vegetable oil, alcoholic and non-alcoholic beverages, cattle and poultry feed, carpets, handicrafts, timber, pharmaceuticals and textiles.

MAJOR MINING PROJECTS

18 - The most important mining projects to be financed by public and private investment are as follows:

a. Copper - By installing concentration and smelting plants, equipping existing mines and prospecting for new ones, the production of cathodic copper is expected to amount to at least fifteen thousand tons by the end of the Fourth Plan, thus making Iran self-sufficient in this respect.

FORECAST OF NEW PRIVATE SECTOR INDUSTRIAL PROJECTS IN THE FOURTH PLAN


Khoy
Marand
Rezaiyeh
Tabriz
Maragheh
Ardebil
Rasht
Gorgan
Sari
Suldeh
Ghazvin
Damghan
Mashhad
Tehran
Sanandadj
Hamadan
Kermanshah
Malayer
Arak
Esfahan
Yazd
CrMn
Ahwaz
Khoramshahr
Mahshahr
Behbahan
Kerman
Shiraz
Booshehr
Jahrom
Bam
Cu
Bandar-Abbas
Iran-Shahr
Power generation
Electronic industry
Bicycles
Manufacture of motor-cycle
Manufacture of cement pipes
Manufacture of compressors
Food processing industry
Cement industry
Timber and paper industry
Pharmaceutical industry
Manufacture of cold storage equipment
Manufacture of razor blades
Manufacture of factory machinery
Ship-building
Manufacture of wire
Manufacture of tiles
Manufacture of Iranit construction materials
Manufacture of clocks and watches
Manufacture of animal food
Sugar industry
Copper smelting
Manufacture of purification and filtration equipment
Manufacture of agricultural implements
Ferrochrome and ferromanganese smelting
CrMn
Electrical equipment and tools
Manufacture of machine tools
Transport equipment
Manufacture of glass and crystal
Manufacture of diesel engines

b. Lead - By installing concentration and smelting plants, it is estimated that the country's entire annual consumption of lead, fifteen thousand tons, will be produced domestically.

c. Gold - The Muteh gold mine is estimated to contain about 2 tons of pure gold. Therefore, with a daily production of 200 tons of ore, it is hoped that by the end of the Fourth Plan a total of 1.5 to 2 tons of this reserve of gold will have been exploited.

PRINCIPLES, POLICIES AND MEASURES

19 - The selection of industrial fields, within the framework of a 15 per cent growth rate target during the Fourth Plan, has been made according to the following principles and criteria:

a. Utilization of domestic raw materials, such as gas, hydroelectric energy, agricultural raw materials and minerals, particularly those at present exported in primary form;

b. The supply of intermediate materials and capital goods, such as chemicals, fertilizers, pesticides, tools and machinery;

c. Providing the maximum possible employment in selected fields such as handicrafts, food processing, ancillary industries associated with heavy industries, metal works and the timber industry;

d. Industries producing for domestic consumption;

e. Export-orientated industries.

20 - In order to reach the industrial and mining targets, the following policies should be observed:

a. The establishment of equilibrium among heavy, medium and small industries producing capital goods, followed by industries producing consumer goods, with priority for basic goods utilized by the general public or as intermediates;

b. The gradual replacement of foreign experts by Iranians, and greater emphasis on training and employing the technical talents of Iranians and the adoption of policies aiming at further participation of industrialists and entrepreneurs in on-the-job training in industry;

c. Raising productivity of existing industries by means of :

- the maximum utilization of capacity,
- renovation and development,
- the supply of raw materials in sufficient quantities,
- securing sufficient working capital,
- employing skilled workers,
- training in management,
- rationalizing enterprises and applying sound management practices.

d. Establishing producers' co-operatives in order to help small-scale industries and, as far as possible, help them to attain maximum employment and to effect a more equitable distribution of income;

e. Emphasizing industries which are related to agriculture in order to make fuller use of agricultural products, thereby raising farmers' incomes, and ultimately increasing their purchasing power for manufactured goods;

f. Giving priority to the expansion of productivity of existing industries, if proved economic, before creating new industries in the same category;

g. Paying special attention to scientific research and to the standardization of all industrial products;

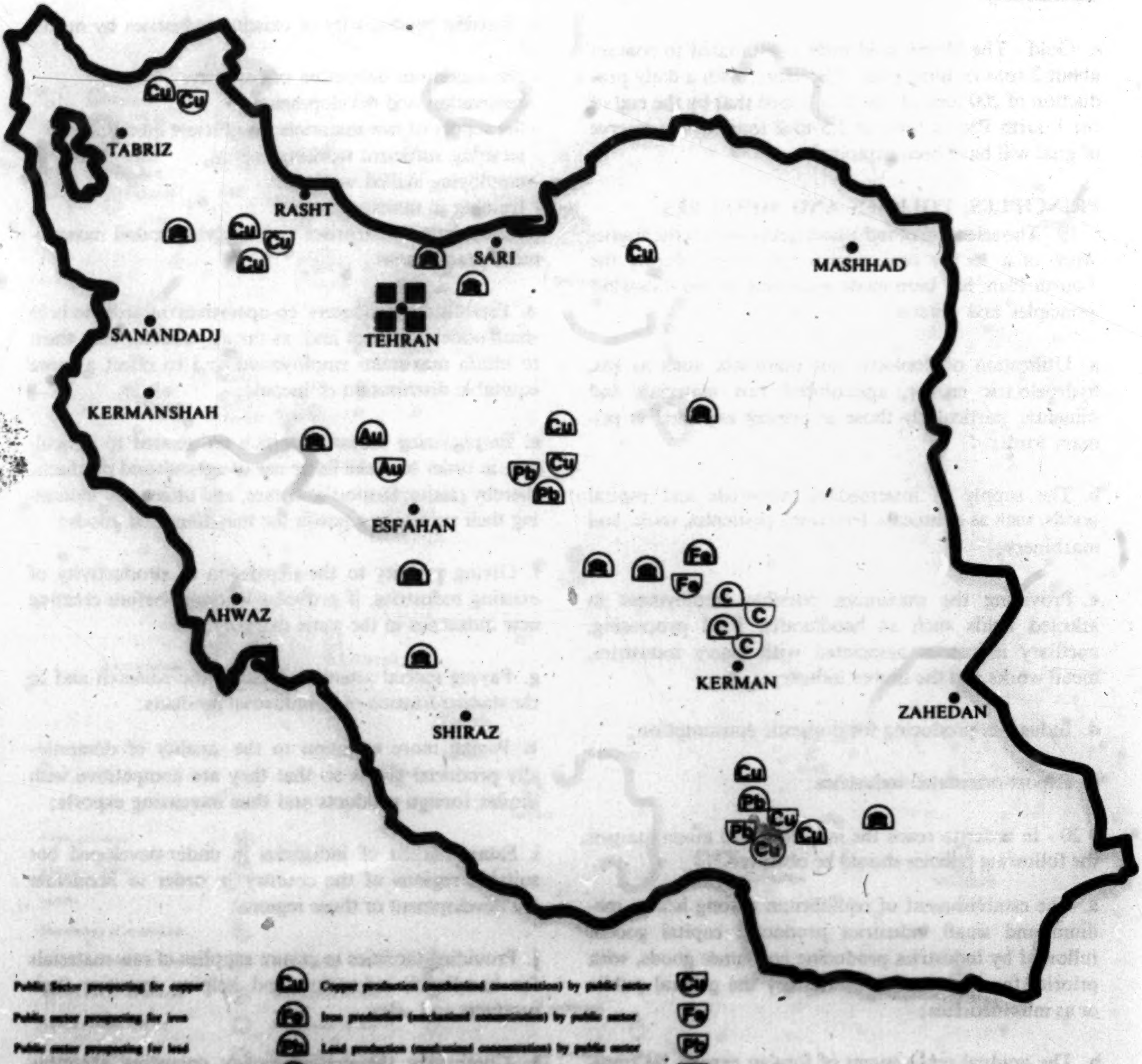
h. Paying more attention to the quality of domestically produced goods so that they are competitive with similar foreign products and thus increasing exports;

i. Establishment of industries in under-developed but suitable regions of the country in order to accelerate the development of those regions;

j. Providing facilities to ensure supplies of raw materials for handicraft industries, and helping improve their products and sales;

k. Continuing the present policy regarding assembly industries so that all parts are gradually manufactured

MAJOR MINING DEVELOPMENT PROJECTS IN THE FOURTH PLAN


TABRIZ
RASHT
SARI
MASHHAD
TEHRAN
SANANDADJ
KERMANSHAH
ESFAHAN
AHWAZ
SHIRAZ
KERMAN
ZAHEDAN
Cu
Au
Pb
Fe
C
Public Sector prospecting for copper
Public sector prospecting for iron
Public sector prospecting for lead
Public sector prospecting for coal
Public sector prospecting for gold
Public sector prospecting for other minerals
Main centre for technical and financial assistance
Copper production (mechanized concentration) by public sector
Iron production (mechanized concentration) by public sector
Lead production (mechanized concentration) by public sector
Coal production (mechanized concentration) by public sector
Gold production (mechanized concentration) by public sector
Production of other minerals (mechanized concentration) by public sector.
Copper production (mechanized concentration) by private sector

in the country;

l. Creation of an infrastructure for small-scale industries in cities, towns and industrial estates.

21 - The following policies will be more closely followed in the course of the Fourth Plan:

a. A review of the administrative methods of Government factories, through the Organization for Expansion and Reconstruction of Industry, and the adoption of policies to transfer a number of both Government factories and mines, even recently established ones if there is no special necessity for them to be owned and managed by the Government, to private ownership;

b. The establishment and support of large-scale industrial and mining corporations through industrial banks and the stock exchange, by amending laws so that small share-lots can be sold to a large number of people with small savings, thus preventing ownership being concentrated in a few hands;

c. The attraction of foreign capital in specific industrial fields which require the co-operation of foreign entrepreneurs for exports to be developed, as well as in those industries which require a high degree of technical know-how;

d. The Government should refrain from investing in industries in which the private sector is interested.

22 - As regards increased productivity and the maximum utilization of existing and new capacities, the following policies will be put into effect:

a. Special attention to industrial studies and scientific research;

b. The raising of productivity through improvements in management and the training of managers and supervisors; encouragement of modern and rational production methods through the establishment of productivity promotion centres;

c. The establishment of vocational schools, and support of advanced technical schools to serve the country's new industries;

d. Helping to propagate and develop new distribution and marketing methods;

e. Providing export goods producers with technical and financial assistance in marketing;

f. The creation and strengthening of auxiliary and complementary units for industries;

g. Sharing the cost of employing foreign and Iranian experts in highly specialized industrial fields;

h. Quality control and standardization of industrial goods.

23 - As regards the location of industries, attention should be paid to the following points:

a. As far as possible, efforts must be made to refrain from establishing new industries or expanding existing ones in Tehran and its vicinity.

b. The creation of large industrial centres in suitable regions of the country with adequate infrastructural facilities.

c. The creation of industrial estates and the centralization of small industries there.

d. In determining the location of industries, care should be taken that the consumption of water required by industries will not damage agricultural production of the region.

e. Where regional development activities are carried out, priority will be given to those industries which conform with the needs and character of the regions concerned.

24 - The present commercial code will be radically reviewed in order to create suitable legal conditions for large industrial investments. The aim is to afford protection, first to shareholders, particularly small ones,

and secondly, to create full confidence in credit transactions. Further, the stock exchange law will be put into effect in order to channel small savings to major industrial investments.

25 - Policies to encourage private investors in industries and mining are as follows:

a. The carrying out of feasibility studies and the preparation of industrial projects by the Government and making the results available to private entrepreneurs;

b. The continuation of credit facilities for loans, participation with private entrepreneurs through specialized banks, the extension of the activities of these banks in order to ensure that sufficient working capital is available;

c. The terms of industrial and mining loans will be revised and special rates will be determined for different industries and regions of the country;

d. The holding of exhibitions of domestic products in Iran and abroad and of the latest technical and scientific methods for the benefit of industrialists and those wishing to invest in these fields;

e. The holding of seminars on industrial and mining subjects and arranging by the Government of mobile audio-visual demonstrations of technical principles and improved working methods to proprietors of small-scale and cottage industry workshops;

f. All establishments and organizations in the public sector should be required to obtain their requirements from domestic industries;

g. Providing incentives to private entrepreneurs to make use of modern systems of management and cost accounting and to publish full annual statements;

h. Paying special attention to mineral exploration, carrying out exploration activities in various regions of the country and making the results available to private investors in mining;

i. Giving advice and technical assistance to private investors in exploring and exploiting mines;

j. Allocation of separate credit facilities by specialized banks for mine exploitation;

k. Providing training to workers and foremen employed in private mines;

l. A review of mining regulations and the organizational structure of the mining industry;

m. Attracting foreign investment in Iranian mining.

INVESTMENT IN INDUSTRY AND MINING DURING THE FOURTH PLAN

26 - During the Third Plan, the private sector's share in industrial investments was considerably greater than that of the public sector. But in view of major existing projects such as the establishment of the steel, petrochemical, machine making and aluminium industries, as well as future ones such as the manufacture of tractors, various mechanical engineering and defence industries, the Government's share in industrial and mining investment will rise considerably.

If the private sector's investment follows the trend of past years with full Government support, the total fixed investment in industries and mining (excluding oil) is expected to reach the figure of Rials 213 billion during the Fourth Plan, of which Rials 99 billion will be direct public investment, Rials 2 billion commercial and profit-making Government enterprises investment and 112 billion Iranian and foreign private investment.

A sum of Rials 99 billion will be allocated to this programme from national development credits, 84.7 billion of which will be direct fixed investment by the public sector, 8.3* billion by the private sector through the banking system and the remaining 6 billion rials for current expenditure.

It is envisaged that, in addition to the above fixed investment of Rials 84.7 billion, the public sector will invest about Rials 2 billion from revenue received from its profit-making and commercial enterprises (See Table 3).

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* Included in Rials 112 billion invested by the private sector.

TABLE 3 — FORECAST OF PUBLIC AND PRIVATE INVESTMENTS IN INDUSTRY AND MINING DURING THE FOURTH PLAN
(MILLIONS OF RIALS)

No.	Industry	Public sector			Private sector			
		Plan Organization credits	Public profit-making & commerical organizations	Total	Plan Organization credits	resources	Total	Grand Total
	1	2	3	4	5	6	7	8
1	Food processing and tobacco	6,120	1,600	7,720	800	8,000	8,800	16,520
2	Metal and metal smelting	40,150	—	40,150	500	5,000	5,500	45,650
3	Mechanical, electrical & vehicles	12,120	10	12,130	3,500	50,000	53,500	65,630
4	Chemicals & petrochemicals	25,100	182	25,282	700	32,200	32,900	58,182
5	Non-metallic minerals	400	—	400	700	3,500	4,200	4,600
6	Other industries (including rural industries)	1,130	108	1,238	1,600	11,900	13,500	14,738
7	Technical assistance for training and research	2,580	—	2,580	—	—	—	2,580
8	Exploration and exploitation of mines	3,100	100	3,200	500	1,400	1,900	5,100
9	Assistance to private investors (in the form of loans or partnership) as described in column 5	8,300						8,300
	Grand Total	90,700	2,000	92,700	8,300	112,000	120,300	213,000

N.B. The Plan Organization has allocated Rials 6 billion for current expenditure related to various industrial and mining activities.

TABLE 4 — INDUSTRY AND MINING TARGETS AND PROGRAMMES BASED ON THE VALUE ADDED OF INDUSTRY AND MINING AT 1344 FACTOR PRICES
(MILLIONS OF RIALS)

Industrial Activities & Projects	1341		1344		1346		1351		1344-1351 Value added ratio (per cent)	Average Annual Rate of Growth (per cent)
	Amount	Per cent	Amount	Per cent	Amount	Per cent	Amount	Per cent		
Food and tobacco industry	13,030	33.3	16,400	29.3	22,200	31.7	30,500	23.5	186	9.3
Textiles, clothing and leather	6,110	15.6	10,280	18.4	13,100	18.7	18,590	14.4	180.8	8.8
Basic metals and metallic products	2,740	7.0	3,010	5.4	5,000	7.2	7,500	5.8	249.2	13.9
Cellulose	1,270	3.2	5,800	10.4	5,900	8.4	9,410	7.3	162.2	7.1
Pharmaceuticals	105	0.3	410	0.7	630	0.9	1,540	1.2	375.6	20.8
Chemicals	1,790	4.6	2,300	4.1	3,000	4.3	3,100	2.4	134.8	4.3
Petrochemicals	—	—	200	0.4	270	0.4	16,000	12.4	800.0	87.0
Mechanical and electrical engineering and vehicles	5,380	13.7	5,580	10.0	6,380	9.1	19,300	14.9	345 9	19.4
Non-metallic minerals	4,010	10.3	4.310	7.7	4,620	6.6	7,840	6.0	181.9	8.9
Handicrafts and carpets	3,790	9.7	4,370	7.8	5,000	7.1	7,750	6.0	177.4	8.5
Other industries	135	0.4	440	0.8	500	0.7	1,210	0.9	275.0	15.5
Total	38,360	—	53,100	—	66,600	—	122,740	—	231.1	12.7
Mining	740	1.9	2,780	5.0	3.400	4.9	6.800	5.2	244.6	13.6
Grand Total	39,100	100	55,880	100	70,000	100	129,540	100	231.8	12.8
G.N.P. at factor prices	327,000	—	407,100	—	495,200	—	748,600	—	183.9	9.1
Share of value added of industry and mining in G.N.P. (per cent)	12	—	13.7	—	14.1	—	17.3	—	—	—

CHAPTER 9

OIL AND GAS

INTRODUCTION

1 - Oil and gas are among the main sources of energy in the world today. The development of industrial activity everywhere depends on these sources of energy and will continue to do so. The increase of industrial activity, on one hand, and the economic advantages of these products over other sources of energy, on the other, have resulted in a rapid increase in the consumption of oil and gas products throughout the world.

An examination of the estimates of energy consumption in the period 1950-1960, and the forecast for 1970, which indicates that the contribution of oil and gas to the world's total production of energy will rise from 37.6 per cent to 59.1 per cent, substantiate this fact.

Year	Coal	Petroleum	Gas	Other sources of energy
	(per cent of total)			
1950	61.5	28.0	9.6	0.9
1960	38.5	36.0	14.7	10.8
1970	29.8	39.0	20.1	11.1

As may be observed from this table the contribution of coal will decline in comparison with other sources of energy, and oil, gas and other sources of energy, such as nuclear energy, will increase proportionately.

In the past, petroleum products were mainly used for lighting and internal combustion engines, whereas today, besides the fact that most of the world's industries operate on them, more than 2700 different products are also derived from petroleum. In addition, gas is not only consumed as fuel, but is also of major importance in the petrochemical industry. The significance of oil and gas as well as the important position occupied by the oil and gas industry in the industrial sector of Iran is self-evident. The National Development Plans, and the implementation of various industrial development projects in Iran have, in the past, largely depended on oil revenues. Suffice it to say that from the beginning of the Third Plan to the end of 1345, more than 70 per cent of Plan Organization receipts were from oil revenues and bonuses and in addition oil accounted for about 13 per cent of Gross National Product.

Domestic consumption of the four major oil products between 1341 to 1345 has risen from 4.2 million cubic metres to 6.2 million cubic metres, an increase of 48 per cent. In 1344, oil accounted for 95 per cent of all commercially produced energy.

PAST ACHIEVEMENT OF OIL SECTOR

2 - The general objectives of Iran's oil industry in the Third Plan consisted of the development of the industry, an increase in oil revenues, the provision of domestic needs and the expansion of the international activities of the National Iranian Oil Company. The objectives of the industry were defined as follows:

a. Increased production from existing fields;

b. Conclusion of new agreements with a view to increasing production;

c. Direct access to foreign markets;

d. Utilization of by-products which were formerly wasted;

e. Meeting the national requirements for oil products especially in rural areas.

3 - In order to achieve the above targets, the National Iranian Oil Company has taken steps to prepare programmes in the following fields:

a. Exploration and production;

b. Refining;

c. Exports;

d. Distribution.

4 - Achievements have been as follows:

a. Exploration and production - During the Third Plan period, six new oil agreements were entered into between the National Iranian Oil Company and foreign oil companies in connection with part of District No. 1 of the continental shelf. One of the signatories of these six agreements, Lavan Petroleum Company (Lapco) has been successful in discovering a commercial field. The development of this field, known as the Sassan field, the construction of installations on Lavan island, and the laying of a 142-kilometre 22-inch submarine pipeline 142 kilometres from the field to Lavan island are at present in progress and it is expected that production will start by the end of 1347.

A new and progressive agreement has also been concluded with the French Group "ERAP" whereby the latter will carry out extensive exploration activities in large areas of the country at their own expense. It should also be mentioned that the Oil Consortium and Iran Pan American Oil Company have succeeded in proving 10 new fields.

Total net production of crude oil by the National Iranian Oil Company and foreign oil companies operating in Iran from 1341 to the end of 1346 has amounted to about 492 million cubic metres and the annual average increase in production during this period has been at the rate of 12.5 per cent.

The share of each of the oil companies in crude oil production has been as follows:

i. During the period under review, the National Iranian Oil Company has exploited about 2,891,000 cubic metres of crude oil from the Naft-e Shah field, in the west of Iran and the Alborz field near Ghom. In 1341 the National Iranian Oil Company produced about 704,000 cubic metres of oil while in 1345 production fell to 497,000 cubic metres owing to the depletion of the Alborz field;

ii. Total net production of crude oil in the Consortium's Agreement Area amounted to 477.6 million cubic metres in the 1341-1345 period, an average annual increase of 11.6 per cent during the period;

iii. Total crude production of Societe Irano-Italienne des Petroles (SIRIP) during the Third Plan period amounted to about 5.4 million cubic metres;

iv. Total production by Pan American Oil Company (IPAC) amounted to about 6.6 million cubic metres in the 1341-1345 period, with most of this production occurring in 1344 and 1345.

Investment in connection with the exploration and production of oil has amounted to approximately Rials 40,267 million, the contributions of the various companies being as follows:

	(Millions of Rials)
National Iranian Oil Company	2,837
Iranian Oil Exploration and Production Company	20,582
Mixed Oil Companies.*	16,848
Total	40,267

Table 1 shows the quantity of crude oil production in the period 1341-1345.

b. Refining - The total throughput of Iranian refineries from 1341 to 1345 amounted to about 13 million cubic metres, an average annual increase of about 2.3 per cent. The throughput of each refinery was as follows:

i. Crude oil delivered to the Naft-e Shah topping plant and Kermanshah refinery, during the Third Plan period, has been respectively 1.4 million cubic metres (1.2 per cent of total refining) and 1.1 million cubic metres (1 per cent of total refining). In 1344, a 6-inch pipeline from Naft-e Shah to No. 2 pumping station was commissioned.

ii. Crude oil delivered to Abadan refinery during the period under review amounted to 107.5 million cubic metres (88.9 per cent of total refining).

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* By this is meant operating companies in which the National Iranian Oil Company has participated with foreign companies in the share capital.

TABLE 1 — CRUDE OIL PRODUCTION IN IRAN, 1341-1345
(THOUSANDS OF CUBIC METRES)

Producing Company	1341	1342	1343	1344	1345	Total Production 1341-1345
1. National Iranian Oil Company (Naft-e Shah and Alborz)	704	848	404	438	497	2,891
2. Iranian Oil Exploration and Producing Company	75,500	83,800	96,300	104,911	117,053	477,564
3. Mixed Companies						
a) Société Irano-Italienne des Pétroles	351	862	1,454	1,389	1,382	5,438
b) Iran Pan American Oil Company	8	17	185	3,679	3,699	6,588
Total	76,563	85,527	98,343	109,417	122,631	492,481

Products exported from Abadan refinery by the Consortium Trading Companies, have amounted to an average of 80.7 per cent of total production. The percentage of total products delivered to the National Iranian Oil Company for domestic consumption has been about 18.5, with the remaining 0.8 per cent as reserve. Meanwhile the quantity of wastage and internal consumption at Abadan refinery has amounted to 7.6 million cubic metres, the equivalent of about 7 per cent of total crude oil delivered to the refinery plus added chemicals.

The following activities have been carried out during the Third Plan for the development of Abadan refinery: the installation of a new catalytic reforming plant (platformer), and the modernization and expansion in capacity of the lubricating oil plant. Table 2 indicates the throughput of Iranian refineries.

c. Exports - The National Iranian Oil Company's total exports from the beginning of the Plan to the end of 1345 have amounted to 456.5 million cubic metres, the contribution of the companies involved being as follows:

i. The National Iranian Oil Company has itself expor-

TABLE 2 — CRUDE OIL REFINING OPERATIONS IN IRAN
(THOUSANDS OF CUBIC METRES)

Year	Abadan Refinery	Masjid-i-Suleiman Topping Plant	Kermanshah Refinery	Naft-e Shah Topping Plant	Total Crude Oil
1341	19,460	1,545	206	264	21,475
1342	19,542	2,270	220	265	22,277
1343	19,936	2,124	234	271	22,565
1344	20,312	2,009	246	277	22,844
1345	20,959	2,089	250	301	23,599
Average annual increase (per cent)	1.9	7.8	4.9	3.4	2.3

ted about 141 thousand cubic metres of motor gasoline, kerosine and gas oil. It has also delivered on board ships about 400 thousand cubic metres of fuel oil and diesel oil in ports in south Iran.

ii. Exports by the Consortium Trading Companies in the period under review amounted to 450.5 million cubic metres of crude oil, of which 87.5 million cubic metres were delivered to Abadan for refining for the Trading Companies' account for export as products, and the remainder was shipped as crude from the Iranian ports. The annual average increase of the Consortium's crude oil exports from 1341 to 1345 amounted to 12 per cent.

iii. The Société Irano-Italienne des Pétroles and the Iran Pan American Oil Company exported respectively 5.4 million cubic metres and 6.4 million cubic metres of their crude oil production during the same period. Moreover, it has been agreed that during the Fourth Plan period the Consortium will deliver to Iran an additional quantity of oil for export.

Tables 3 and 4 indicate oil exports.

d. Distribution - The sale of oil products during the period 1341-1345 amounted to 27 million cubic metres, an average annual increase of 10.7 per cent. It may also be mentioned that the National Iranian Oil Company's Distribution Department, by granting necessary credits, has succeeded in establishing more than 4,700 sales outlets in villages and rural centres, and to supplying the oil products required by the inhabitants of these localities and neighbouring villages at standard prices.

TABLE 3 — OIL EXPORTS FROM IRAN DURING THIRD PLAN (THOUSANDS OF CUBIC METRES)

Year	Consortium Trading Companies				National Iranian Oil Company		Société Irano-Italienne des Pétroles	Iran Pan American Oil Company
	From Bandar Mah Shahr	From Kharg	From Abadan	Total	Bunkers	Exports	Bahregansar	Kharg
1341	38,992	14,874	17,430	71,226	76	28	363	15
1342	43,533	18,218	17,719	79,470	80	38	812	7
1343	47,557	25,620	17,476	90,653	67	34	1,456	89
1344	47,924	32,978	17,442	98,344	88	21	1,395	2,728
1345	6,102	87,324	17,426	110,852	87	20	1,394	3,606

TABLE 4 — NUMBER OF TANKERS LOADING CRUDE OIL AND REFINED PRODUCTS DURING THIRD PLAN

Year	Bandar Mah Shahr	Kharg	Abadan	Kharg (IPAC)	Bahregansar (SIRIP)	Annual Total
1341	1,139	418	858	1	16	2,432
1342	1,264	455	806	1	40	2,548
1343	1,301	585	784	3	61	2,734
1344	1,272	624	748	75	41	2,760
1345	252	1,732	740	83	30	2,837
Total	5.210	3,814	3,936	163	188	13,311

The consumption of oil products by these villages during the Third Plan has amounted to 344 thousand cubic metres. From 1341 to 1345, total investment by the National Iranian Oil Company's Distribution Department amounted to Rials 1,235 million an annual, average of Rials 247 million.

The commercial operations of the National Iranian Oil Company's Distribution Department are summarized in Table 5, which shows that income from this source in 1345 showed a 72 per cent increase over that of the first year of the Plan.

TABLE 5 — COMMERCIAL OPERATIONS OF OIL DISTRIBUTION
(MILLIONS OF RIALS)

	1341	1342	1343	1344	1345
Sales	10,414	11,982	14,172	16,765	17,985
Taxes and Charges	3,564	3,741	4,797	6,501	6,235
Total Expenses	6,750	6,310	7,074	7,618	8,358
Net Profit	100	934	2,301	2,646	3,302

5 - Major projects executed under the oil sector during the period under review are as follows:

a. The Kharg or Cham project, the purpose of which was to increase the production and export of oil from the Consortium Agreement Area. Work on this project was started at the end of 1343 and after its completion all crude oil exports from the Agreement Area will be loaded from the Kharg Island terminal. At present, this project is in its final stages. The installation of the third and the fourth Ganaveh-Kharg submarine pipelines has already been completed. The total cost of this project will be about Rials 7 billion.

b. Tehran refinery - The purpose of this refinery, which is under construction, is to supply oil products for Tehran and the northern regions of Iran. About 73 per cent of the total work has been completed, and the investment so far amounts to Rials 4.5 billion, or about 60 per cent of the total.

c. Construction of the Second Pipeline - This 754 - kilometre line between Ahwaz and Tehran plays an important role in providing oil products to the northern regions of the country. It was completed in Mehr 1345, and represents an investment of Rials 4.3 billion.

d. Establishment of the National Iranian Oil Tanker Company - Most of Iran's oil exports have been shipped by foreign companies, and this matter has imposed relatively heavy costs on the National Iranian Oil Company in view of its commitments towards foreign countries for the sale of its oil. Therefore National Iranian Oil Company authorities decided to sell their share of oil directly on the international market. Consequently, in 1344 the National Iranian Oil Tanker Company was formed with an initial capital of Rials 160 million. The Company at present owns four oil tankers, a total capacity of 172 thousand tons.

6 - International Activities - One of the main objectives of the National Iranian Oil Company has been to acquire steady markets for the sale of crude oil. To attain this target requires the construction or participation in the construction of refineries and participation in other downstream activities abroad. Participation in the construction of a refinery in Madras was carried out for these purposes. In Aban 1344, agreements relating to the establishment of a company, the construction of the Madras refinery and the sale of crude oil were signed. On the basis of these agreements, the Government of India has undertaken to purchase during the agreement period from the National Iranian Oil Company and Pan American International Oil Company 42 million tons of crude oil from the Darius field. The time-limit for the execution of the project to reach its final phase has been anticipated at three years, and it is expected that this refinery will be ready for operation by the end of 1347. The National Iranian Oil Company's investment in the above project amounts to $ 13.5 million, of which, $ 2,340,000 represents capital in the new company, and $ 11,160,000 is a loan granted by the National Iranian Oil Company to the refinery. The Indian Government owns 74 per cent of the equity, while the National Iranian Oil Company and Pan American International Oil Company each own 13 per cent. The loan carries an interest rate of 5.5 per cent.

To meet the necessary expenditure of the Madras refinery, $1.9 million has been paid on account of the share capital, and the balance will soon be paid.

7 - The National Iranian Oil Company's Non-Basic Activities - During the Third Plan period, the National Iranian Oil Company has taken measures in such fields as medical and health, education and social affairs. In the field of medical and health services, the Company spent between the beginning of the Third Plan and the end of 1345 more than Rials 540 million on the construction of hospitals and clinics, and Rials 100 million for social affairs and welfare.

8 - Oil Agreements - As regards the oil industry, the Third Plan period may be considered one of oil agreements. In 1343, a Supplemental Agreement was entered into with the Consortium. In accordance with this Agreement, in addition to the taxes received by the National Iranian Oil Company, the Company will, in future, receive a stated payment of about 12.5 per cent. In 1343, 1344 and 1345 reductions were also granted in the posted price to the Consortium of 8.5, 7.5 and 6.5 per cent respectively. During 1344 and 1345, six new agreements were concluded with foreign companies according to which 75 per cent of the profits would accrue to Iran and 25 per cent to the second parties to such agreements. In 1345, an agreement was also entered into with the French Group "ERAP", according to which Iran's share of profits will amount to as much as 91.5 per cent. All these agreements will raise the production of oil and provide for additional revenues. As a result of the agreements which have been entered into with foreign countries for the sale and expansion of oil installations of Iran, Iran has acquired direct access to new world markets in addition to the Consortium's markets.

By the end of 1347, the operations of the Madras refinery will be producing an annual income of about $24 million from the sale of crude oil, 75 per cent of which will accrue to Iran in accordance with agreements concluded. In addition to this revenue, Iran will have an annual income of about $ 738,000 from its 13 per cent shareholding in the refinery.

The Consortium and Iran Pan American Oil Company have succeeded in discovering ten new producing fields. Lavan Petroleum Company discovered the Sassan field, which has been declared commercial.

Geological surveys in Iran have also been expanded to more regions.

9 - The above measures have collectively resulted in an average annual increase of 12.5 per cent in the total production of crude oil from 1341 to the end of 1345, and an average annual increase of 12.8 per cent in total exports during the same period. During the above period, oil revenues amounted to $ 2.4 billion.

GENERAL OBJECTIVES OF THE OIL INDUSTRY DURING THE FOURTH PLAN

10 - The general and basic objectives of the Oil Industry in the Fourth Plan may be summarized under the following three heads:

a. to develop the national oil industry and raise the revenues thereof;

b. to provide for oil products needed for domestic consumption;

c. to expand the National Iranian Oil Company's activities abroad.

11 - In connection with the development of the oil industry, if the determined programmes of the National Iranian Oil Company in the field of developing and discovering new fields prove successful, the production of crude oil, which was expected to amount to approximately 143 million cubic metres per year at the end of the Third Plan, will probably reach 279 million cubic metres by the end of the Fourth Plan period.

To attain these objectives, programmes have been perpared for exploration so that proven oil reserves are increased to the maximum possible. As a result of agreements reached with the Iranian Oil Consortium, 25 per cent of their Agreement Area has been relinquished to the National Iranian Oil Company for exploration purposes. As regards exports, it is intended that by 1350 a quantity of 20 million tons of additional crude oil will be delivered to the National Iranian Oil Company by the Consortium for sale in markets other than the Consortium's.

12 - Necessary measures relating to the refining and distribution of liquid oil products will be as follows:

a. to adjust the ratio of growing consumption of middle distillates, such as kerosine and gas oil, and developing the consumption of liquefied petroleum gas and liquefied natural gas;

b. to make greater use of electric power in pipeline pumping station, and convert the consumption of liquid fuel to electric power in areas where electricity is available more easily and at cheaper rates;

c. to distribute products on the basis of direct distribution from refineries to major centres of consumption and to prevent the construction of storage facilities and double transportation, and to build refineries in Shiraz and either Tabriz or Khorasan with due regard for the maintenance of a balance between various sources of energy;

d. to stabilize and balance the offtake of oil products from Abadan refinery;

e. to stabilize and balance the transport of crude oil from the southern fields to the north of Iran;

f. to establish plants aimed at producing special oil products such as lubricants, solvents, and asphalts;

g. to develop the transport and distribution of products by pipelines in order to ensure the implementation of oil transportation programmes in cases where the capacities of other means of transport are inadequate to meet requirements and where economies in the transport of oil would result;

h. to develop the transport of oil to villages, so that oil is utilized in place of animal manure, which is at present used for fuel, by establishing 15,000 sale agencies, and increasing the consumption of oil products in villages by 1,832,000 cubic metres during the Fourth Plan period.

13 - The following measures will be taken to obtain access to international markets:

a. to form mixed oil companies for the purpose of discovering new oil resources, trying to obtain access to international markets, and to participate in the sale of crude oil. At present, the National Iranian Oil Company has at its disposal established markets to sell 60,000 barrels of oil per day. If production starts from the Now Ruz field the quantity of oil sold in this way would rise to 140,000 barrels a day;

b. to construct or participate in the construction of refineries and plants to be supplied by Iranian feedstock, whether of a crude or intermediate nature;

c. to obtain access to marketing and transport operations, which has been the basis of the National Iranian Oil Company's measures to seek international markets and the establishment and expansion of an oil tanker fleet. The National Iranian Oil Company will make special efforts during the next five years in these fields and by anticipating commitments which it has undertaken for the next five years, the Company is considering the expansion of its marine transport facilities and the purchase of two supertankers during the Fourth Plan period.

DISTRIBUTION OF FOURTH PLAN CREDITS FOR THE EXPANSION OF THE OIL INDUSTRY

14 - Total credits allocated to oil industry development programmes during the Fourth Plan period amount to Rials 81 billion, of which Rials 28.5 billion will be derived from the resources of the National Iranian Oil Company and the remainder from the Consortium, the Société Irano-Italienne des Pétroles, the Iran Pan American Oil Company, and the other mixed oil companies. The expenditure of the National Iranian Oil Company during the period 1346-1351 is expected to amount to about Rials 29.2 billion, or Rials 28.5 billion after deducting the amounts for 1346.

The breakdown of this expenditure is as follows:

	(Millions of Rials)
1. Exploration and Production	3,750
2. Refining	4,245
3. Distribution and Sales	3,685
4. Pipelines	4,547
5. Social Affairs and Welfare	531
6. Repayment of loans from previous years	10,000
7. Participation abroad	1,500
8. Payment of loan to Madras Refinery	1,000
Total	29,258
1346 Expenditure	738
Balance	28,520

Of the total Rials 10,000 million as repayment of loans from previous years should not be considered as investment.

15 - The National Iranian Oil Company expects its investment sources to be as follows:

	(Millions of Rials)
a. Own budget	3,750
b. Oil sales	
1. Iran Pan American Oil Company	3,000
2. Société Irano-Italienne des Pétroles	550
3. Lavan Petroleum Company	800
c. Other sources	
1. General reserves (2 %)	2,250
2. Depreciation	13,500
d. Plan Organization	4,670
Total	28,520

Table 6 shows the investment programme of the Iranian Oil industry as a whole.

THE IMPORTANCE OF GAS

16 - In the introduction to this chapter, the growing importance of gas as against other types of sources of energy was illustrated by means of world statistics. It is worth mentioning in this connection that the greater part of natural gas produced has hitherto been burned and wasted. With the development of the petrochemical industry and the growing consumption of gas, however, authorities all over the world have become more concerned with the maximum utilization of gas.

ACHIEVEMENT OF THE GAS INDUSTRY IN THE PAST

17 - In the middle of the Third Plan, the Government of Iran, taking into consideration the wastage of natural gas that was taking place in Iran and the growing consumption of gas both at home and abroad, decided to establish an organization for the purpose of centralizing all activities related to gas such as production, distribution, domestic sales and exports.

The National Iranian Gas Company, with an initial capital of Rials 10 million, was therefore formed at the end of 1344. One of its objectives was to substitute gas for oil as a fuel in Iran to the maximum possible extent. The National Iranian Gas Company's capital was soon raised from Rials 10 million to Rials 700 million. The Gachsaran Gas Treatment Plant and the Gachsaran-Shiraz gas trunkline and other affiliated installations were transferred to the National Iranian Gas Company. Finally the Company proceeded to execute projects related to the establishment of the Iranian Gas Trunkline, the 16-inch Gachsaran-Shiraz gasline, and construction of two pipe-rolling mills in Ahwaz.

18 - Total production and consumption of gas during the 1341-1345 period were as follows:

	(Millions of cubic metres) Production	Consumption
National Iranian Oil Company	460	103
Iranian Oil Operating Companies	63,293	16,564
Société Irano-Italienne des Pétroles	427	—
Iran Pan American Oil Company	1,206	—

TABLE 6 — INVESTMENT PROGRAMMES OF THE OIL INDUSTRY DURING THE FOURTH PLAN

Unit and Description	Approximate date of start of project	Completion date	Millions of Dollars	Millions of Rials	Millions of Pounds Sterling	Total (Millions of Rials)
1. NIOC Exploration and production				3,750		3,750
Fars Refinery project (40,000 barrels per day)	Aban 1347	Mehr 1349	31.000			2,325
Kermanshah Refinery project (15,000 barrels per day)	Farvardin 1347	Mehr 1348	7.000			525
Refinery project in north-west or north-east Iran	Farvardin 1349	Mehr 1351	3.600			270
Construction of a lubricating oil plant (50,000 tons per annum)	1348	—	15.000			1,125
Capital projects for sale and distribution, movable property, real estate, and materials				3,685		3,685
Pipeline projects				4,547		4,547
Medical and health projects				531		531
Overseas investments			20.000			1,500
2. Iranian Oil Operating Companies					150-170	34,240 (mean)
3. Mixed oil companies a Société Irano-Italienne des Pétroles Exploration			10.200			765
Development (if Now Ruz field declared commercial)			33.680			2,526
b Lavan Petroleum Projects			71.112			5,333
c Iran Pan American Oil Company Exploration			20.000			1,500
Development			26.000			1,950
Fereidun oil-field development if declared commercial			69.550			5,216
			307.142	12,513	150-170	69,788

Notes: 1. In 1343 the High Planning Council approved the transfer of Rials 124 million remaining from the 6,000 million Rial credit for the Tehran Refinery project to the Fourth Plan to be made available to the National Iranian Oil Company in 1347 in cash.

2. Loans received by the National Iranian Oil Company in previous years amounting to Rials 11 billion have not been included in total investment.

TABLE 7 — GAS PRODUCTION AND CONSUMPTION IN IRAN (MILLIONS OF CUBIC METRES)

	Iranian Oil Operating Companies				National Iranian Oil Company			Société Irano-Italienne des Pétroles and Iran Pan American Oil Company	
Year	Production	Consumed	Used in turbines and later flared	Flared	Production	Consumed	Flared	Production	Flared
1341	9,121.40	1,032.49	1,982.67	6,106.24	118.53	21.37	97.16	—	—
1342	10,720.78	1,119.66	1,933.74	7,217.38	131.83	19.04	112.79	—	—
1343	11,694.74	1,172.78	2,276.21	8,244.75	70.31	19.41	50.90	—	—
1344	14,368.65	1,209.45	2,272.67	10,886.44	69.79	20.17	49.62	713.10 *	713.10
1345	17,838.54	1,363.22	2,200.67	14,274.65	70.71	23.15	47.56	919.6**	919.6

* 217.3 million cubic metres were produced by Société Irano-Italienne des Pétroles and 495.8 million cubic metres by Iran Pan American Oil Company.

** 209.8 million cubic metres were produced by Société Irano-Italienne des Pétroles and 709.8 million cubic metres by Iran Pan-American Oil Company.

Of the total consumption of gas by the Iranian Oil Operating Companies, 10.7 billion cubic metres were used for the production of energy. Table 7 shows the quantities of gas produced and consumed in Iran from 1341 to 1345.

Studies on the 16-inch Gachsaran-Shiraz gasline for the increase of consumption have been completed, and construction has been deferred to the Fourth Plan period. The Ahwaz pipe-rolling mills are under construction. Production from the large plant started during the second half of 1346 and the smaller plant will be commissioned four months later.

19 - It may be stated in general terms that the foundations of the gas industry were laid during the Third Plan period, and activities began with the conclusion of an agreement for the export of gas to the USSR. Preliminary steps were also taken for the execution of a gas industry development programme for the Fourth Plan, including the construction of the Ahwaz pipe-rolling mills.

OBJECTIVES OF THE FOURTH PLAN FOR THE GAS INDUSTRY

20 - The objectives of the Fourth Plan for the gas industry are to make the maximum use of gas as one of the country's natural resources and to make increasing use of it for general and industrial consumption, including that of the electricity industry, and to take measures for the development, distribution and consumption of gas.

SPECIFIC PROGRAMMES AND PROJECTS OF THE GAS INDUSTRY DURING THE FOURTH PLAN PERIOD

21 - The specific programmes and projects of gas industry will be as follows:

a. the continuation of the Iranian Gas Trunkline projects;

b. increasing the capacity of the Gachsaran gas treatment plants, which at present amounts to more than 200 million cubic metres per year, and major repairs to existing plants and gaslines;

OIL & GAS PIPELINES AT THE END OF THE FOURTH PLAN

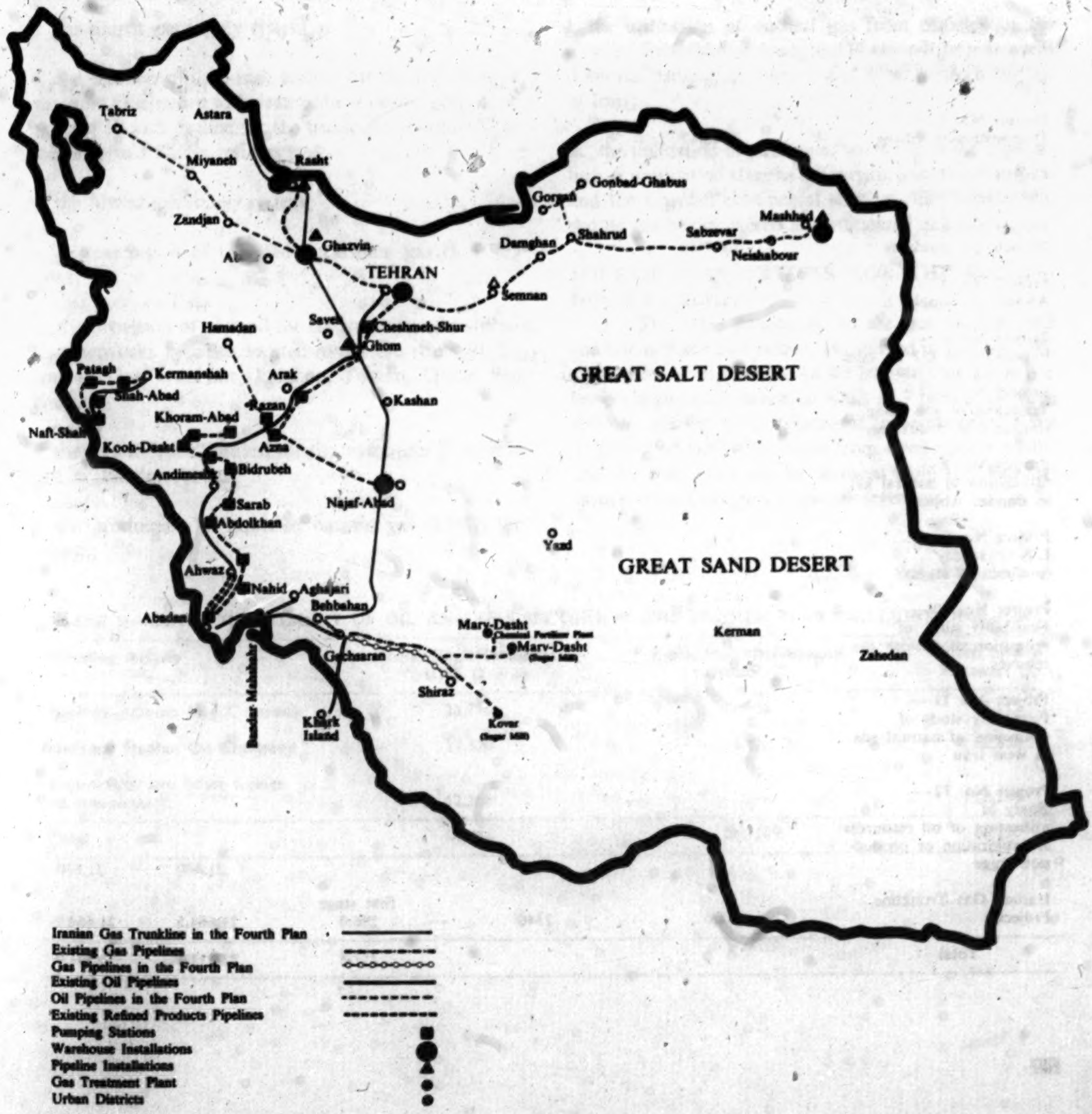

Tabriz
Astara
Miyaneh
Rasht
Zandjan
Ghazvin
TEHRAN
Gonbad-Ghabus
Gorgan
Shahrud
Damghan
Sabzevar
Mashhad
Neishabour
Semnan
Saveh
Cheshmeh-Shur
Ghom
Hamadan
Patagh
Kermanshah
Shah-Abad
Arak
Razan
Kashan
Khoram-Abad
Naft-Shah
Kooh-Dasht
Azna
Andimeshk
Bidrubeh
Najaf-Abad
Sarab
Abdolkhan
Yazd
Ahwaz
Nahid
Aghajari
Abadan
Behbahan
Bandar Mahshahr
Gachsaran
Mary-Dasht
Chemical Fertilizer Plant
Marv-Dasht
(Sugar Mill)
Shiraz
Khark Island
Kovar
(Sugar Mill)
Kerman
Zahedan
GREAT SALT DESERT
GREAT SAND DESERT
Iranian Gas Trunkline in the Fourth Plan
Existing Gas Pipelines
Gas Pipelines in the Fourth Plan
Existing Oil Pipelines
Oil Pipelines in the Fourth Plan
Existing Refined Products Pipelines
Pumping Stations
Warehouse Installations
Pipeline Installations
Gas Treatment Plant
Urban Districts

TABLE 8 — GAS INDUSTRY INVESTMENT PROGRAMMES DURING THE FOURTH PLAN

Description	Project starting date	Completion date	Millions of Dollars	Millions of Rials	Total Millions of Rials
Project No. 1 — Expansion of capacity of Gachsaran gas treatment plant	1346-47	1347-48		154.3	154.3
Project No. 2 — Demonstration village	1346-47			13.4	13.4
Project No. 3 — Shiraz gas supply	1346-47			32.5	32.5
Project No. 4 — 16-inch gas trunkline	1347-48	1348-49	11.0		833.2
Project No. 5 — Ahwaz gas supply	1347-48			446.3	446.3
Project No. 6 — Expansion of L P G sales		1348-49		56.0	56.0
Project No. 7 — Transport of gas along Iranian Gas Trunkline			19.0		1,439.2
Project No. 8 — Utilization of natural gas in Bandar Abbas			1.8		136.4
Project No. 9 — L N G supply (preliminary stages)					
Project No. 10 — Feasibility study of utilization of Sarajeh gas reserves					
Project No. 11 — Feasibility study of utilization of natural gas in west Iran					
Project No. 12 — Study of utilization of oil resources at exploration or production stage				21,630	21,630
Iranian Gas Trunkline Project	1345	1348	first stage 286.0	21,664.5	21,664.5
Total			317.8	22,332.5	24,761.0

c. the implementation of an experimental village project for the utilization of natural gas in villages located along the Iranian Gas Trunkline, for the operation of electricity-generating turbines and well pumps;

d. the Shiraz gas supply system;

e. the erection of a 16-inch gasline for the transport of gas from Gachsaran to Shiraz and the conversion of the existing 10-inch gasline for the transport of crude oil to the proposed Shiraz refinery;

f. the Ahwaz gas supply system;

g. the expansion of liquefied petroleum gas (L P G) sales;

h. the provision of gas and the construction of distribution networks in cities located along the route of the Iranian Gas Trunkline, Esfahan, Tehran, Ghom and Kashan;

i. the "Chah Boro" project for the utilization of natural gas at Bandar Abbas;

j. the production of liquefied natural gas (LNG) for export;

k. the carrying out of a feasibility study for the utilization of Sarajeh gas reserves as additional reserves to meet the seasonal requirements of the Iranian Gas Trunkline project;

l. the utilization of natural gas from oilfields in the west of Iran (Naft-e Shah and Tang-e Bijar), to meet domestic demand in western and north-western regions of Iran;

m. the utilization of petroleum resources at the exploration or production stage as at Gorgan, Sarakhs, Moghan and the Caspian continental shelf of the Caspian Sea, should gas be discovered in commercial quantities.

FOURTH PLAN CREDITS FOR THE GAS INDUSTRY

22 - The total investment in the gas industry will amount to Rials 24.8 billion, as outlined in Table 8. The major item of this relates to the Iranian Gas Trunkline project with an allocation of Rials 21.7 billion, or $ 286 million. Of the total investment the amount of Rials 21.63 billion will be provided from development credits and the remainder will be financed from the National Iranian Gas Company's special revenues.

TABLE 9 — FIXED INVESTMENT OF OIL AND GAS SECTORS IN THE FOURTH PLAN (MILLIONS OF RIALS)

Investing Agency	Total Fixed Investment (1) = (2 + 3)	From Plan Organization Credits (2)	From Special Revenues (3)
National Iranian Gas Company	24,776	21,664	3,112
National Iranian Oil Company	17,520	4,670	12,850
Consortium and other foreign oil companies	52,268	—	52,268
Total	94,564	26,334	68,230

CHAPTER 10

WATER

INTRODUCTION

1 - The shortage of water is one of the most important factors limiting the expansion of agriculture in Iran. According to available estimates, the total amount of water received annually by the country by means of precipitation and rivers in the period 1335-1344 fluctuated from as little as 300 billion to as much as 590 billion cubic metres. The annual average is estimated at about 400 billion cubic metres, of which about 240 billion are lost by direct or indirect evaporation and only 100 billion cubic metres are surface flow in the form of perennial and seasonal rivers, while the remaining 60 billion cubic metres permeate into the ground. Of these 100 billion cubic metres of surface flow, about 20 billion cubic metres are used for irrigation purposes, while of the 60 billion cubic metres of permeating water about 9 million cubic metres are extracted and utilized.

2 - The average annual precipitation in Iran is estimated at about 24 centimetres and since the average for the whole world is 86 centimetres, Iran may be regarded as an arid or semi-arid country. The following table shows the distribution of rainfall in Iran:

TABLE 1 — DISTRIBUTION OF RAINFALL IN IRAN

Annual rainfall (Millimetres)	Recipient area (Millions of hectares)	Ratio of recipient area to total area of the country (Per cent)
Less than 100	22	13
100 to 250	100.5	61
250 to 500	28	17
500 to 1000	13	8
Over 1000	1.5	1
Total	165	100

From the above table it can be concluded that there is sufficient rainfall for agriculture (over 500 millimetres) only on 9 per cent of the land surface of the country and that for the remaining 91 per cent agriculture requires artificial irrigation. Even dry farming is not feasible on 74 per cent of land surface where the annual precipitation is less than 250 millimetres, while dry farming of cereals is possible on 17 per cent of the land surface where the annual precipitation is between 250 and 500 millimetres, provided a timely distribution of rainfall occurs.

3 - Of the 400 billion cubic metres of water that on average enter Iran each year by rivers or precipitation, only about 78 billion cubic metres, or 19 per cent, is utilized. Assuming that the country's groundwater resources remain approximately constant, the remainder either evaporates or flows out of the country in the form of rivers.

Of these 78 billion cubic metres, about 37 billion is utilized for agriculture, 1 billion for domestic and industrial consumption and the remaining 40 billion is consumed in the form of evaporation and evapotranspiration in forests and pastures. Out of the 37 cubic metres used in farming, about 29 billion (19 billion of surface water and 9 billion of groundwater) is utilized on irrigated land.

4 - Owing to insufficient rainfall, farming depends on irrigation in many parts of the country. In the history of Iranian agriculture, "ghanats" (underground water channels) have been the most important means of exploiting groundwater resources. The amount of water obtained by ghanats in the past decade has been estimated at about six billion cubic metres a year. In recent years, however, the extraction of groundwater by means of deep and shallow wells has increased considerably, and it is estimated that about 3 billion cubic metres of water are extracted in this way.

THE ACHIEVEMENTS OF THE SECTOR IN THE PAST

5 - As given in the Third Plan Outline the target of the Plan as regards irrigation consisted of the following:

a. Supplying the water required for an additional 140 thousand hectares of irrigated land;

b. Regulating the water required for improved irrigation of 260 thousand hectares of cultivated land;

c. Irrigation surveys to gather data on water resources and making preparations for the implementation of Fourth Plan projects.

6 - In order to attain these targets, the following irrigation projects were envisaged in the Third Plan:

Completion of Second Plan projects in progress (such as the Empress Farah, Amir Kabir and Mohammad Reza Shah Pahlavi dams); development of groundwater resources by drilling wells and improving ghanats; development of surface waters; surveys and other irrigation activities.

Table 2 shows the increased area of arable land and improvements in the irrigation of existing arable lands envisaged in the Third Plan:

7 - The most important policy recommended in the Third Plan for Agriculture and Irrigation was to emphasize comparatively small-scale irrigation projects as opposed to the large multi-purpose projects stressed in the Second Plan.

8 - In the early years of the Third Plan, two major developments occurred that greatly affected the method of implementating the irrigation programme, as planned:

a. Execution of the Land Reform Programme — With the change brought about in land tenure, the extent of private investment in water resources development during the first years of the Plan fell considerably below what had been anticipated at the time when the Outline for Agriculture and Irrigation was being prepared. This in turn caused an increase of public investment in this field. After the stabilization of land tenure, however, private investment gradually began to pick up.

b. The Establishment of the Ministry of Water and Power — With the formation of this Ministry in the early stages of the Third Plan, all Government activities relating to irrigation proceeded in a co-ordinated manner and policy decisions which had hitherto been made by various organizations such as regional water boards and the independent Irrigation Institute, were centralized within a responsible agency, which speeded up the implementation of large-scale projects in this respect.

9 - In general, the Third Plan was successful with regard to the expansion of arable land, as it prepared water and irrigation networks for approximately 145

TABLE 2 — TARGET INCREASE IN AREA OF ARABLE LAND AND IMPROVED IRRIGATION DURING THE THIRD PLAN
(THOUSANDS OF HECTARES)

Programme	Increase in area of arable land	Improved irrigation in arable land
1. Completion of Second Plan Projects	55	170
2. Development of groundwater resources and drilling of wells	30	20
3. Improvements to ghanats	10	40
4. Development of surface water resources	45	30
Total	140	260

TABLE 3 — PERFORMANCE OF THIRD IRRIGATION PLAN

	Programme	Increase in area of arable land	Improved irrigation
1.	Completion of Second Plan Projects	50	140
2.	Drilling of wells	65	70
3.	Improvements to ghanats	10	15
4.	Development of surface water resources	20	15
	Total	145	240

thousand hectares of land, while improvements were effected in the irrigation of nearly 240 hectares.

Table 3 shows the performance of each of the major irrigation programmes.

10 - In connection with projects transferred from the Second Plan, those relating to the development of Khuzestan, the Empress Farah Pahlavi dam, the Amir Kabir dam and irrigation network, and the Farahnaz and Shahnaz dams have successfully been completed. With the implementation of these projects, in addition to augmenting the water supply for domestic consumption in the cities of Tehran and Hamadan, about 50 thousand hectares of land have been made arable and the irrigation of about 140 thousand hectares has been improved.

11 - Measures taken in connection with the utilization of groundwater resources have mainly been financed from credits provided by the Agricultural Bank. According to statistics provided by the Bank about Rials 2,600 million has been granted to applicants for drilling deep and shallow wells, completing or improving existing wells, constructing or improving ghanats and other activities related to irrigation during the 1341-1345 period.

As a result of private investments made by recipients of loans themselves, loans granted by rural co-operative societies, the Ghazvin Plain well-drilling programme, loans extended by sugar factories, exploration wells drilled free of charge, and finally wells drilled by farmers with their own private capital, about 50 thousand hectares of land have been added to the area of irrigated arable land in the country and improvements have been effected on a further 60 thousand hectares already under irrigated cultivation. It is estimated that by the end of the Third Plan a total of 65 thousand hectares of virgin land will have been made arable and the irrigation of 70 thousand hectares of existing arable land will have been improved.

As a result of the construction and improvement of ghanats and water channels by private investment, an estimated area of 8 thousand hectares of virgin land has been made arable and the irrigation of 12 thousand hectares has been improved during the period from the beginning of the Third Plan to the end of 1345, and it is expected that by the end of the Third Plan these figures will have reached 10 thousand and 15 thousand hectares respectively.

12 - With respect to the development of surface water resources, major measures have been taken, and with the implementation of related projects about 20 thousand hectares of virgin land and 15 thousand hectares of existing farmland have been irrigated. In addition, new projects for the utilization of surface water resources, including large-scale multi-purpose projects such as those of the Shah Abbas the Great, Darius the Great, Shahpur I and Cyrus the Great dams, have been started towards the end of the Third Plan, and are expected to be completed and commissioned during the Fourth Plan.

MAJOR WATER PROBLEMS IN IRAN

13 - The most important bottlenecks and adverse factors for the development of Iran's water resources, apart from the low rainfall already mentioned, are as follows:

a. Unfavourable geographic distribution of rainfall — Only about one third of Iran's annual precipitation falls on the central plateau, which represents over half of the total surface area of the country, while the Caspian region, with only 10 per cent of surface area, enjoys a further third of this precipitation;

b. Unseasonable distribution of rainfall — Although most of the growth of plants takes place in summer, most of the precipitation occurs at the end of winter and the beginning of spring, while in summer when crops need water most, rainfall and the level of rivers are at their lowest point;

c. The high level of evaporation and evapotranspiration. Abundant sunshine and high temperatures considerably increase the amount of evaporation and evapotranspiration of plants, which leads to heavy loss of water;
(As an example, in the Tehran area, where the average annual precipitation is 22 centimetres, potential evaporation is about 2.7 metres or roughly 12 times actual precipitation.)

d. Unfavourable land conditions — The greater part of precipitation on the slopes of the Alborz mountain range and the western part of the country becomes surface streams and owing to the steep gradients in these mountainous regions, the water cannot be regulated and utilized, and therefore flows into inland lakes or out of the country;

e. Large distances between water resources and arable land — The country's water resources are in most cases situated a long way from lands suitable for farming, and the cost of conveying the water to where it is required is very high;

f. Inadequate irrigation networks — In the history of Iran's agriculture, water has been the chief determining factor in agricultural production and economic prosperity, and its supply has often involved heavy expenditure and strenuous efforts. Present methods of utilizing water, however, are incompatible with economic and technical standards, and the existing irrigation networks are not utilized in a proper and logical manner, and as a result, owing to the inadequate nature of the irrigation networks a considerable amount of the controlled waters goes to waste by percolating into the ground from water channels or evaporating before it can be utilized;

g. Lack of co-ordination between activities relating to the development and supply of water resources and their utilization — This means that in most cases, in terms of timing and execution, projects for the development of water resources and agricultural projects involving the use of water from these new resources have not been properly co-ordinated;

h. Lack of adequate statistical data and studies on water resources — Firstly, available statistics mostly relate to surface water and do not cover the whole country. Secondly, the collection of such statistics has only recently been started and consequently long-term regular statistical series, enabling accurate forecasts to be made, are not available. Thirdly, comprehensive studies of surface and groundwater resources have not yet been made for the whole country;

i. Lack of essential laws and regulations compatible with modern methods of utilizing water resources — The inadequacy of regulations relating to methods of utilizing groundwater resources by means of ghanats and wells, which has taken place without detailed technical studies, existing regulations governing the utilization of river water (such as the principle of upstream privilege) and water-rights which prevent the full utilization of land and water;

j. Difficulties relating to the utilization of some frontier rivers.

GENERAL OBJECTIVES OF THE SECTOR IN THE FOURTH PLAN

14 - The general and long-term objective of the development of country's water resources consists of regulating all the water that can be economically utilized in

agriculture, industry and urban development, in the light of modern technical progress.

15 - Within the framework of the above general objective, the specific targets of the Fourth Plan in connection with the development of water resources are as follows:

a. An increase in the quantity of water used for irrigated farming by about 15 per cent so that this item may be raised from about 29 billion cubic metres in the first year of the Plan to about 33 billion cubic metres by the end of the Plan, resulting in an increase of 400 thousand hectares in the area of arable land and improvements and extensions to irrigation networks affecting an area of about 500 thousand hectares (Table 4).
In addition to the above, about 2.4 billion cubic metres of unregulated water will be controlled.

b. Meeting the water requirements of industry with due regard for agricultural water priorities.

TABLE 4 — ESTIMATED INCREASE IN AREA OF ARABLE LAND READY FOR CULTIVATION, AND LAND WHICH WILL RECEIVE IMPROVED IRRIGATION IN THE COURSE OF THE FOURTH PLAN (THOUSANDS OF HECTARES)

Title of Project	Increased area of arable land	Improved irrigation	Total
1. Irrigation network of Empress Farah dam (Sefid Rud)	96	20	116
2. Irrigation network of Mohammad Reza Shah Pahlavi dam (Dez)	30	65	95
3. Irrigation network of Darius the Great dam (Dorudzan)	54	16	70
4. Irrigation network of Aras dam	39	18	57
5. Irrigation network of Shah Abbas the Great dam (Zayandeh Rud)	25	70	95
6. Irrigation network of Cyrus the Great dam (Zarrineh Rud)	25	11	36
7. Irrigation network of Jiroft dam	6	16	22
8. Irrigation network of Shahpur I dam (Mahabad)	10	6	16
9. Irrigation network of Washmgir dam (Sangar Savar)	10	10	20
10. Development of Ghazvin plain	—	44	44
11. Karun irrigation network	24	6	30
12. Marun irrigation network	6	56	62
13. Garmsar irrigation network	—	20	20
14. Irrigation network of Farahnaz dam (Varamin)	—	30	30
15. Exploitation of groundwater resources	60	60	120
16. Other irrigation projects	15	52	67
Totals	400	500	900

c. Supplying water required for the Urban and Rural Development Plan from surface or groundwater resources.

d. Carrying out essential studies on water resources for the purpose of determining the quality and quantity, drawing up a comprehensive water balance and survey of the country's water resources and preparing special projects for the development of water resources for future Plans.

e. Supervision of proper utilization of groundwater resources.

PRINCIPLES, POLICIES AND EXECUTIVE MEASURES

16 - The principles, policies and executive measures relating to the development of water resources during the Fourth Plan are as follows:

a. In view of the principle of nationalizing water resources, there will be a revision of regulations governing the utilization of water resources, so that this item of the national wealth is properly supervised and the utilization thereof rendered profitable and logical.

b. The introduction of scientific measures and carrying out of essential studies and research into the application of modern techniques for the utilization of water resources.

c. As the shortage of water is the main limiting factor in the development of agriculture, water will be utilized in localities where the highest output can be obtained.

d. In the Fourth Plan, priority will be given to the completion of irrigation networks of dams already constructed and repairing existing canals and old irrigation networks which cause wastage of available water.

e. Equipment required for projects related to the development of water resources, such as pipes, motor-pumps and light machinery will be manufactured within the country provided that such manufacture is compatible with industrial development programmes and economically feasible.

f. Since particular attention is to be paid to the establishment of regional water authorities in all regions of the country, executive activities and the operation of projects will be transferred to such authorities and administered on a profit-making and commercial basis with responsibility for the supply, distribution and sale of water in every region thus centralized in one agency.

IMPORTANT WATER PROJECTS IN THE FOURTH PLAN

17 - The plan for the development of water resources has been drawn up with due regard for water basins and administrative divisions. As shown in Table 5, the country has been divided into nine regions and various projects included are envisaged for the development of water resources in these regions. The projects, in terms of the nature of work involved, may be summarized as follows:

a. Completion of irrigation networks of dams already constructed. This group of projects consists of the completion of irrigation networks in areas where reservoir dams have been constructed during the Development Plans, and the full operation of which necessitates the completion of irrigation networks. The group includes four projects, the most important ones being the irrigation networks of the Mohammad Reza Shah Pahlavi (Dez) and Empress Farah Pahlavi (Sefid Rud) dams. Allocations made for these projects constitute 15 per cent of development funds allocated to water resources in the Fourth Plan. The project for the completion of the secondary stage of the Karaj irrigation network is to be carried out at a cost of Rials 100 million from the revenues of the Tehran Water Board (Table 6).

b. Completion of projects started in the Third Plan. This group consists of eight projects, as follows: the Darius the Great (Dorudzan) dam; the Shah Abbas the Great (Zayandeh Rud) dam; the Shahpur I (Mahabad) dam; the development of the Ghazvin plain (including the Taleghan dam and diversion tunnel); the Aras reservoir and diversion dams; the irrigation network of the Shah Abbas the Great dam; the irrigation network of the Darius the Great dam; and the Cyrus the Great (Zarineh Rud) dam and irrigation network. Work began on these projects in the Third Plan period and will

TABLE 5 — SUMMARY OF ALLOCATIONS FOR THE DEVELOPMENT OF WATER RESOURCES IN THE FOURTH PLAN, BY REGION
(MILLIONS OF RIALS)

Region	From development funds	From Water Board revenues	Total
1. District 1, Tehran	5,675	3,150	8,825
2. District 2, Gilan and Mazandaran	4,200	—	4,200
3. District 3, Azarbaijan	8,830	—	8,830
4. District 4, Khuzestan and Kordestan	10,725	1,500	12,225
5. District 5, Fars and Persian Gulf Ports	3,325	—	3,325
6. District 6, Kerman	3,470	—	3,470
7. District 7, Sistan and Baluchestan	780	—	780
8. District 8, Khorasan and Gorgan	1,915	—	1,915
9. District 9, Esfahan	4,200	—	4,200
10. Operational expenses of Water Boards	1,100	—	1,100
11. Utilization of groundwater	1,700	—	1,700
12. Groundwater surveys	700	—	700
13. River gauging and surveying	300	—	300
14. Water nationalization expenses	800	—	800
15. Laboratories, technical bureaus, research, and publication of reports	330	—	330
16. Payment of Sabir Co. capital	50	—	50
17. Desalinization of water, miscellaneous irrigation studies and operations	400	—	400
Total	48,500	4,650	53,150

TABLE 6 — COMPLETION OF IRRIGATION NETWORKS OF CONSTRUCTED DAMS
(MILLIONS OF RIALS)

	Region	Project title	From development funds	From Water Board revenues
1	1	Secondary Karaj irrigation network	—	100
2	2	Completion of projects begun in the Third Plan including Tarik, Pasikhan, Shakharaz dam, Fuman canal, survey and building of secondary irrigation network in Gilan and Fumenat	3,400	
3	2	Equipment for diversion dams, communications and connection of new canals to old ones; cost of temporary dams in Gilan	110	
4	4	Greater Dez irrigation network	4,000	
		Total	7,510	100

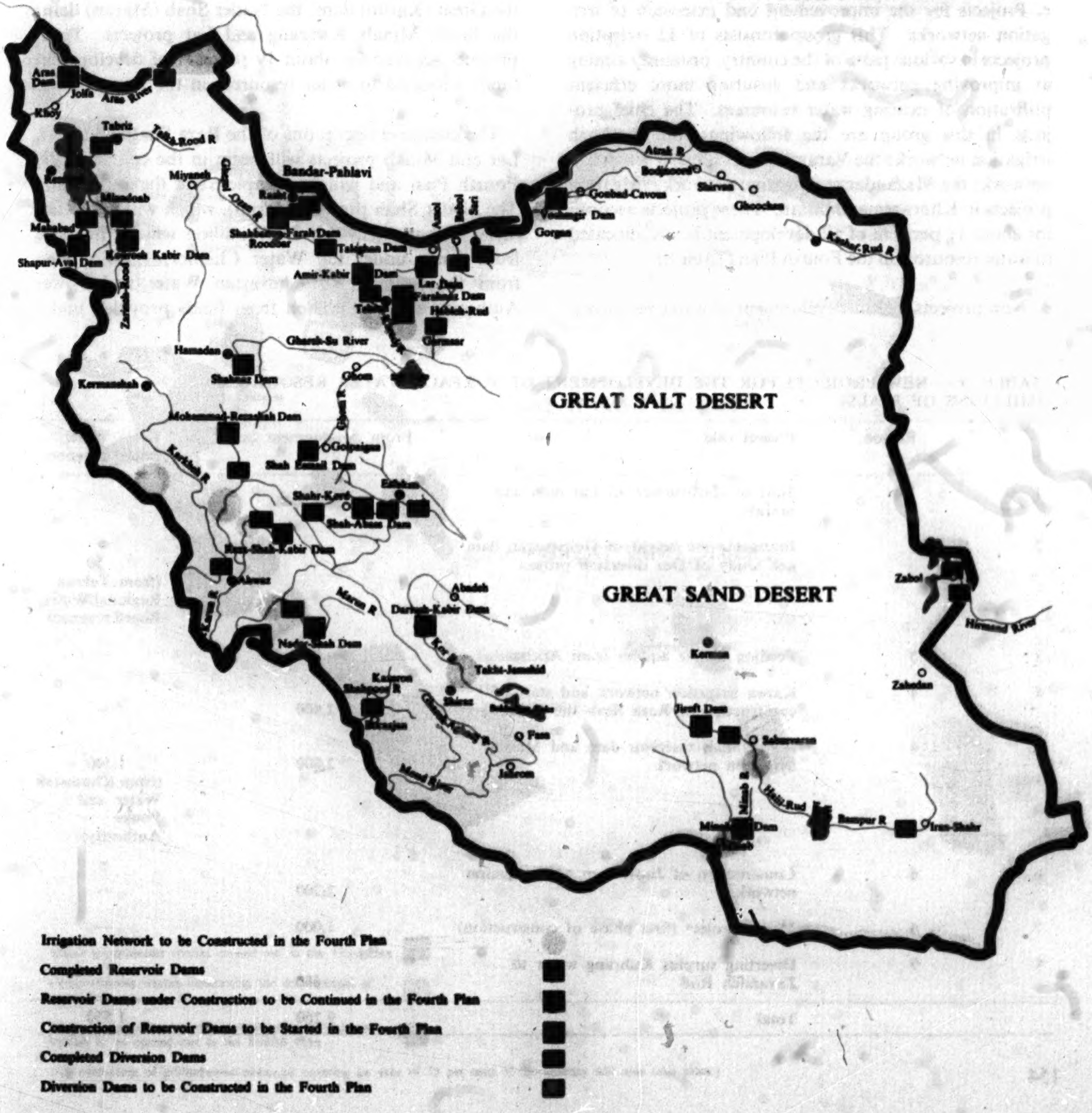
TABLE 7 — COMPLETION OF PROJECTS STARTED IN THE THIRD PLAN (MILLIONS OF RIALS)

	Region	Project title	From development funds
1	1	Irrigation of Ghazvin plain, Taleghan diversion dam and tunnel	3,200
2	2	Aras dam and network	5,100
3	3	Cyrus the Great dam and network	2,100
4	4	Shahpur I dam and network	1,300
5	5	Darius the Great dam and network	2,600
6	9	Construction of Shah Abbas the Great dam and network	3,500
7	8	Washmgir dam and network	800
8	1	Completion of Farahnaz and Shahnaz dams	255
		Total	18,855

TABLE 8 — PROJECTS RELATED TO THE EXPANSION AND IMPROVEMENT OF IRRIGATION NETWORKS (MILLIONS OF RIALS)

	Region	Project title	From development funds
1	1	Garmsar and Varamin diversion dams and main irrigation network	800
2	2	Construction of diversion dams and main canals in Mazandaran (Haraz, Tajan, Talar and Babol)	350
3	4	Karkheh irrigation network	900
4	4	Shavur irrigation network	320
5	4	Marivan project	200
6	4	Irrigation network for Mehran, Sumar, and Zohab plains	275
7	4	Diversion dam and irrigation network in Zeydun, Hendijan and Mamasani region	300
8	5	Kordbal irrigation network and other irrigation projects in Fars	525
9	6	Minor projects in Kerman region	150
10	7	Sistan irrigation project	600
11	7	Minor irrigation projects in Sistan	180
12	8	Implementation of water resources project in Khorasan and Gorgan	845
		Total	5,445

DAMS AND IRRIGATION NETWORKS TO BE CONSTRUCTED IN THE FOURTH PLAN


Aras Dam
Jolfa
Aras River
Khoy
Tabriz
Talkh-Rood R
Miyaneh
Ghezel Ozan R
Bandar-Pahlavi
Rasht
Miandoab
Mahabad
Shapur-Aval Dam
Kourosh Kabir Dam
Zarineh-Rood
Shahbanou Farah Dam
Roodbar
Taleghan Dam
Amol
Babol
Sari
Gorgan
Voshmgir Dam
Gonbad-Cavous
Atrak R
Bodjnoord
Shirvan
Ghoochan
Kashaf-Rud R
Amir-Kabir Dam
Lar Dam
Farahnaz Dam
Hableh-Rud
Tehran
Karadj R
Garmsar
Gharah-Su River
Hamadan
Shahnaz Dam
Ghom
Kermanshah
Mohammad-Rezashah Dam
Ghom R
Golpaigan
Shah Esmail Dam
Karkheh R
Esfahan
Shahr-Kord
Shah-Abbas Dam
Reza-Shah-Kabir Dam
Ahwaz
Karun R
Maroun R
Abadeh
Dariush-Kabir Dam
Nader-Shah Dam
Kor R
Takht-Jamshid
Kazeroon
Shahpoor R
Borazjan
Shiraz
Fasa
Jahrom
Mond River
GREAT SALT DESERT
GREAT SAND DESERT
Kerman
Zabol
Hirmand River
Zahedan
Jiroft Dam
Sabzevaran
Minab R
Minab Dam
Halil-Rud
Bampur R
Iran-Shahr
Irrigation Network to be Constructed in the Fourth Plan
Completed Reservoir Dams
Reservoir Dams under Construction to be Continued in the Fourth Plan
Construction of Reservoir Dams to be Started in the Fourth Plan
Completed Diversion Dams
Diversion Dams to be Constructed in the Fourth Plan

continue during the Fourth Plan. Credits for these projects amount to 39 per cent of the development funds allocated to water resources in the Fourth Plan (Table 7).

c. Projects for the improvement and extension of irrigation networks. This group consists of 12 irrigation projects in various parts of the country, primarily aiming at improving networks and ensuring more efficient utilization of existing water resources. The chief projects in this group are the following: the Karkheh irrigation network; the Varamin and Garmsar irrigation network; the Mazandaran irrigation network; irrigation projects in Khorasan and Sistan. These projects account for about 11 per cent of all development funds allocated to water resources in the Fourth Plan (Table 8).

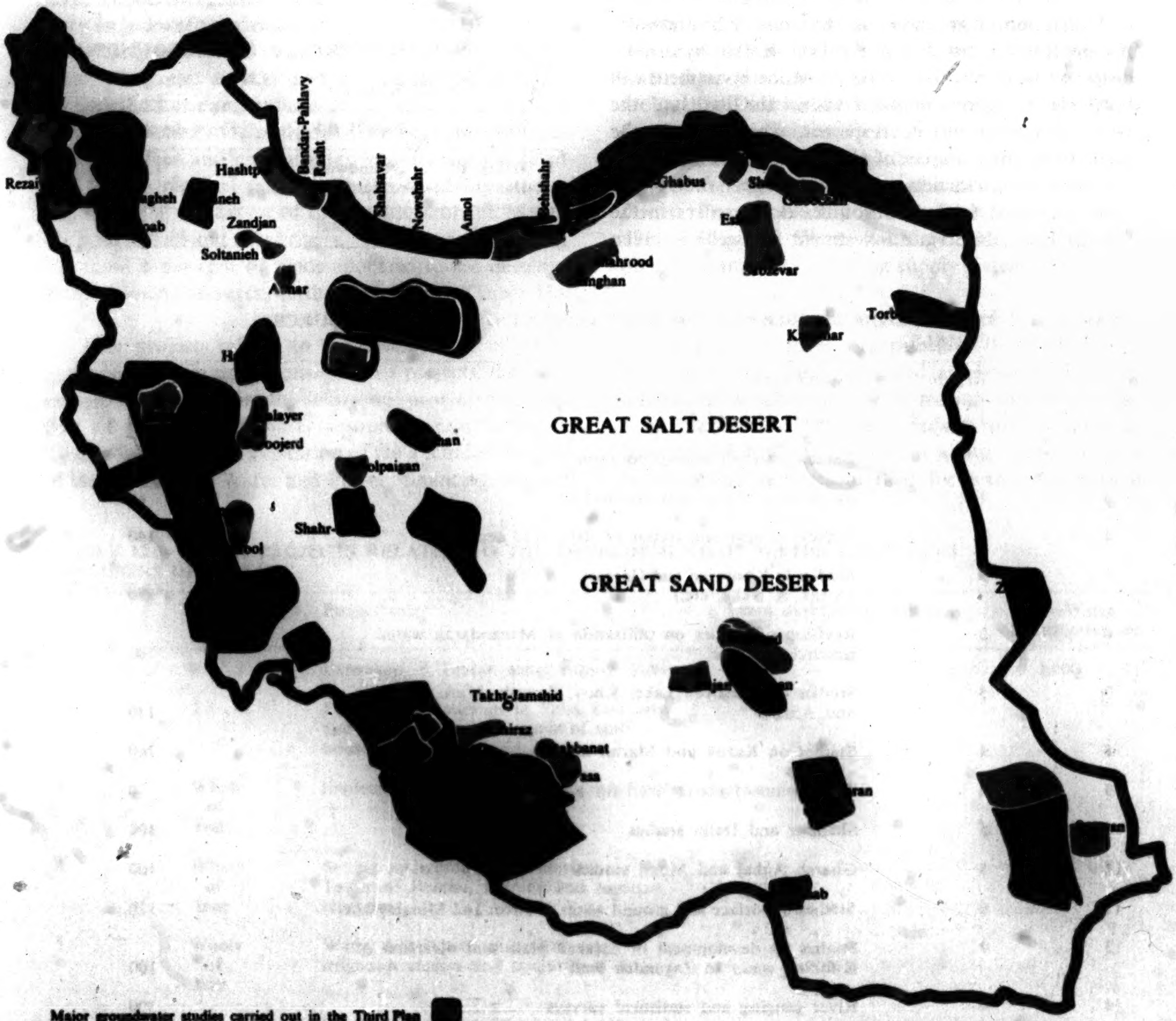
d. New projects for the development of water resources. This group consists of 8 new projects, the execution of which will start in the Fourth Plan and which will go into full operation during the Fifth Plan. The chief projects in this group are the following: the Reza Shah the Great (Karun) dam; the Nader Shah (Marun) dam; the Jiroft, Minab, Kuhrang and Lar projects. These projects account for about 19 per cent of development funds allocated to water resources in the Fourth Plan.

The executive operations of the Reza Shah the Great, Lar and Minab projects will begin in the course of the Fourth Plan and will be completed in the Fifth Plan. The Nader Shah project (Marun), which will cost Rials 4,000 million, of which 2,000 million will be financed from funds under the Water Chapter, 1,500 million from the revenues of Khuzestan Water and Power Authority and 500 million from funds provided under

TABLE 9 — NEW PROJECTS FOR THE DEVELOPMENT OF SURFACE WATER RESOURCES (MILLIONS OF RIALS)

	Region	Project title	From development funds	From Water Board revenues
1	1	Start of construction of Lar dam and tunnels	800	—
2	1	Increasing the height of Golpayegan dam and study of Dez diversion project	—	50 (from Tehran Regional Water Board revenue)
3	3	Feeding Tabriz aquifer from Ajichai	200	—
4	4	Karun irrigation network and start of construction of Reza Shah the Great dam	2,400	—
5	4	Nader Shah reservoir dam and Marun irrigation network	2,000	1,500 (from Khuzestan Water and Power Authority)
6	6	Construction of Jiroft dam and irrigation network	2,200	—
7	6	Minab project (first phase of construction)	1,000	—
8	9	Diverting surplus Kuhrang water to Zayandeh Rud	600	—
		Total	9,200	1,550

STUDIES RELATING TO SURFACE WATER AND GROUNDWATER RESOURCES IN THE FOURTH PLAN


Rezai
Hashtp
Bandar-Pahlavy
Rasht
Shahsavar
Nowshahr
Amol
Behshahr
Ghabus
Ghoochan
Zandjan
Soltanieh
Abhar
Shahrood
Damghan
Sabzevar
Torb
Kashmar
GREAT SALT DESERT
Malayer
Boroojerd
Golpaigan
Shahr-
GREAT SAND DESERT
Takht-Jamshid
Shiraz
Estahbanat
Fasa

Major groundwater studies carried out in the Third Plan ■

Comprehensive studies concerning the development of water resources ■

Major comparative and semi-comparative groundwater studies to be carried out in the Fourth Plan ■

(An evaluation of groundwater resources covering an area of 75 per cent of the country will also take place.)

the Electricity Chapter, will start in the Fourth Plan. The project for increasing the height of the Golpayegan dam at a cost of Rials 50 million will be financed from Tehran Water Board revenues (Table 9).

e. Utilization of groundwater resources. Groundwater resources will be utilized in the Fourth Plan by drilling deep and shallow wells, and most of the investment will be made in regions situated within the limits of the poles of agricultural development, where use can be made of existing sources of electric power. Allocations for wells in this section amount to 3.5 per cent of the funds allocated to water resources development in the Fourth Plan. If private investment for wells is taken into account, the Fourth Plan provides for 1,500 deep and 3,500 shallow wells. The cost of maintaining ghanats will also be secured from agricultural funds, co-operative societies and private investments (Table 10).

TABLE 10 — UTILIZATION OF GROUNDWATER RESOURCES
(MILLIONS OF RIALS)

	Region	Project title	From development funds
1	Whole of Iran	groundwater resources	1,700
		Total	1,700

TABLE 11 — STUDY PROJECTS RELATING TO DEVELOPMENT OF WATER RESOURCES
(MILLIONS OF RIALS)

	Region	Project title	From development funds
1	1	Varamin plain studies	40
2	1	Lar dam survey and exploration	500
3	1	Saveh dam survey and exploration	80
4	2	Surveys in upstream section of Sefid Rud and Gilan	140
5	9	Studies in Khorasan and Gorgan (Atrak & Neka, etc.)	270
6	2	Revision of studies on utilization of Mazandaran water resources	100
7	3	Studies on Rezaiyeh Lake, Khoy, Zangeh, Maru, Gharesu and Ajichai	130
8	4	Studies on Karun and Marun dams	260
9	4	Preparation of master plan for Karkheh basin	70
10	5	Shahpur and Dalki studies	100
11	5	Ghareh Aghaj and Mond studies	100
12	6	Studies of surface and ground water of Jiroft and Minab plains	120
13	9	Studies on development of Esfahan plain and diversion of Kuhrang water to Zayandeh Rud	100
14	—	River gauging and statistical surveys	300
15	—	Groundwater studies	700
		Total	3,010

f. Projects relating to water resources development surveys. This group consists of 15 projects for surveying surface and groundwater resources. The chief projects in this group are the following: groundwater surveys to meet agricultural, urban and industrial requirements. They include reconnaissance of 75 % of alluvial plains of the country and semi-detailed and detailed surveys in 30 specific regions; surveys and exploratory works concerning the Lar dam; surveys of the Karun and Marun dams; an examination of the feasibility of further utilization of surface and groundwater resources in the Jiroft and Minab regions; and finally the feasibility studies regarding the utilization of the resources of the Mond, Shahpur, Dalki and other rivers. These projects account for about 6 per cent of funds allocated to the development of water resources in the Fourth Plan (Table 11).

g. Other projects related to the development of water resources — This group consists of six projects, the most important of which are the following: providing for the cost of nationalizing water resources; establishing a hydraulic laboratory; expansion of the Technical Bureau of the Ministry of Water and Power; financing training and research work, as well as the publication of reports relating to irrigation projects in Iran; the performance of miscellaneous irrigation operations; payment of the outstanding capital of Sabir Company (an irrigation and dam building company related to the Ministry of Water and Power); studies and operations relating to the desalinization of salt water and preventing fresh water from becoming mixed with salt water, especially around the Dasht-e Kavir and the shores of the Sea of Oman and the Persian Gulf. Funds allocated to these six projects amount to about 4 per cent of funds earmarked for the development of water resources in the Fourth Plan (Table 12). About Rials 3,000 million of Tehran Regional Water Board revenues will be spent on the expansion of the water supply system.

h. Meeting part of the expenditure of the operations of the regional water organizations — In the Fourth Plan these have been estimated at about Rials 16,300 million, of which Rials 15,200 million will be obtained from the revenues of the boards themselves and the balance of Rials 1,100 million, or about 2 per cent of the development funds earmarked for water resources in

TABLE 12 — OTHER PROJECTS RELATED TO THE DEVELOPMENT OF WATER RESOURCES (MILLIONS OF RIALS)

	Region	Project title	From development funds	From Water Board revenues
1	1	Extension of Tehran water supply system	—	3,000
2	2	Purchase of buildings in Sefid Rud area and construction and repair of staff houses in Rasht	100	
3	Whole of Iran	Implementation of nationalization of water resources	800	
4	Whole of Iran	Setting up hydraulic laboratories, Technical Bureau, training and research, reporting	330	
5	Whole of Iran	Water desalination, miscellaneous irrigation studies and operations	400	
6		Payment of outstanding capital of Sabir Company	50	
		Total	1,680	3,000

the Fourth Plan, will be allocated from development funds (Table 13).

INVESTMENT IN WATER RESOURCES DURING THE FOURTH PLAN

18 - Allocations for the development of water resources from the funds of this chapter amount to Rials 48,500 million. Furthermore, it is estimated that about Rials 4,650 million will be invested in this field by profit-making and commercial enterprises of the public sector. Tables 14 and 15 summarize this investment.

TABLE 13 — PARTIAL PROVISION OF OPERATIONAL EXPENDITURE OF REGIONAL WATER BOARDS (MILLIONS OF RIALS)

	Region	Project title	From development funds
1	Whole of Iran	Water Board operational expenditure	1,100
		Total	1,100

TABLE 14 — FIXED INVESTMENT FOR DEVELOPMENT OF WATER RESOURCES IN THE FOURTH PLAN (MILLIONS OF RIALS)

	Source of investment	Public sector (1)	Private sector (2)	Total (3) = (1 + 2)
1.	Development funds	47,400	—	47,400
2.	Special revenues	4,650 *	—	4,650
3.	Private savings	—	1,200	1,200
	Total	52,050	1,200	53,250

* Includes Rials 3,000 million allocated for extension of water system for city of Tehran.

TABLE 15 — SUMMARY OF ALLOCATIONS MADE FOR THE DEVELOPMENT OF WATER RESOURCES IN THE FOURTH PLAN, BY TYPE OF PROJECT (MILLIONS OF RIALS)

	Project groups	From development funds	From revenue of Water Boards	Total
1.	Completion of irrigation networks of constructed dams	7,510	100	7,610
2.	Completion of under construction projects of Third Plan	18,855	—	18,855
3.	Irrigation improvement projects	5,445	—	5,445
4.	New surface water projects	9,200	1,550	10,750
5.	Utilization of groundwater	1,700	—	1,700
6.	Water resources development survey projects	3,010	—	3,010
7.	Other projects related to water resources	1,680	3,000	4,680
8.	Meeting part of operational expenditure of Regional Water Boards	1,100	—	1,100
	Total	48,500	4,650	53,150

CHAPTER 11

ELECTRICITY

INTRODUCTION

1 — In economic development planning, electricity is important for two reasons: it is an effective means of improving individual welfare as well as an infrastructural factor in raising industrial and agricultural production and increasing national income.

The economic development of Iran since the beginning of the Second Plan period has led to increased output and consumption of electric power. But since no account was taken of the electricity industry* in the economic planning at the time, it failed to develop very rapidly. As a result, most industrial, commercial and agricultural undertakings had no alternative but to install their own electricity generating units. With the beginning of the Third Plan period, which marked the turning-point in the country's economic development, the design and construction of large-scale electricity generation and transmission installations and the improvement of load factors to reduce generating costs were provided for, and this enabled the electricity utilities to supply both domestic users and also industrial, commercial and agricultural consumers at reasonable rates.

World surveys show a direct correlation between industrial growth and an increased level of national income on one hand and electricity consumption on the other. Therefore, national economic growth and the successful execution of industrial programmes calls for the parallel development of the electricity industry.

PAST PERFORMANCE OF THE SECTOR

2 — The two objectives of the Third Electricity Plan were to stimulate industrial expansion and to cater for consumer demand. To achieve them, the planners recommended that consumers should be reliably and adequately supplied at reasonable rates and that electricity generation, transmission and distribution installations should be developed within the framework of comprehensive economic schemes and projections of demand, particularly in the major load centres and large and medium-sized towns of industrial importance.

The Plan therefore envisaged, where economically justified, the establishment of eight major electricity generating centres (diesel, steam and hydro), with high-tension lines connecting them to the main areas of consumption. At the beginning of the Third Plan period, however, the number of these centres was increased to eleven. In small towns where electricity was required only for lighting purposes, the installation of small generators was also recommended. The Third Plan thus provided for the installation of 433,000 kilowatts of new generating capacity to meet public and non-industrial demand and 361,000 kilowatts for industrial needs, a total of 794,000 kilowatts.

3 — The Third Plan recommended the establishment of the Iranian Electricity Authority together with regional and district electricity companies. The Authority would be responsible for stepping up national electricity output, the establishment of the regional and district electricity companies, the supervision and direction of their activities and services, the planning and carrying out of electricity programmes and projects, the conception of various training programmes, the establishment of electricity standards, the fixing of tariffs and, finally, the execution of studies on the installation of large-scale generating stations and transmission lines.

4 — One of the major policies under the Third Plan was to improve operating techniques in order to improve the quality of supply, cut prices and generating and distribution costs, and reform the tariff structure.

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* By the electricity industry is meant the electricity supply industry, including the generation, transmission and distribution of electric power.

5 — The activities undertaken in pursuit of the goals of the Third Electricity Plan, as regards the expansion of generating capacity and establishment of the Iranian Electricity Authority, had the following results:

a. Electricity generating capacity equivalent to 662,200 kilowatts was installed for the major load centres. With the 4 hydro-electricity plants purchased during the Second Plan period and installed and commissioned during the Third Plan period, total installed generating capacity in the major load centres during the Third Plan period amounts to 827,200 kilowatts (Table 1).

b. Generating capacity in 23 medium-sized towns has reached 80,350 kilowatts (Table 2).

c. Generating capacity in small towns has increased to 34,450 kilowatts.*

d. 710 kilometres of 230 kV and 260 kilometres of 132

TABLE 1 — INSTALLATION OF ELECTRICITY GENERATING FACILITIES AT MAJOR LOAD CENTRES (KILOWATTS)

Location	Type of generator	Number and capacity of each set	Total capacity
Tehran	Gas turbine	2 x 12,500	25,000
	Steam	3 x 82,500	247,500
	Hydro (Farahnaz Dam)	1 x 22,000	22,000
Esfahan	Steam	2 x 37,500	75,000
	Diesel	6 x 3,000	18,000
	Mobile gas turbine	1 x 7,400	7,400
Shiraz	Gas turbine	1 x 8,000	8,000
	Mobile gas turbine	1 x 7,400	7,400
Tabriz	Steam	2 x 6,000	12,000
Mashhad	Steam	2 x 12,500	25,000
	Diesel	2 x 3,000	6,000
Kerman	Diesel	1 x 1,000	1,000
	Diesel	3 x 2,000	6,000
Kermanshah	Diesel	3 x 2,000	6,000
Hamadan	Diesel	3 x 2,000	6,000
	Gas turbine	1 x 7,400	7,400
Empress Farah Pahlavi Dam	Hydro	3 x 17,500	52,500
Mohammad Reza Shah Pahlavi Dam	Hydro	2 x 65,000	130,000
Total			662,200
Mohammad Reza Shah Pahlavi Dam	Hydro**	2 x 65,000	130,000
Empress Farah Pahlavi Dam	Hydro**	2 x 17,500	35,000
Grand total			827,200

** Installation work on these generators started in the Second Plan; and was completed and commissioned in the Third Plan.

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* As a result, generating capacity has risen by 942,000 kilowatts altogether. This figure does not include the independent generating capacity of government and private industrial plants.

kV transmission line and the 270-kilometre second circuit of the Dez-Abadan transmission line were erected.

TABLE 2 — DIESEL GENERATORS PURCHASED FOR MEDIUM-SIZED TOWNS DURING THE THIRD PLAN PERIOD (KILOWATTS)

Town	Number and capacity of each set	Total capacity
Gorgan	3 x 3,000	9,000
Kashan	2 x 3,000	6,000
Arak	2 x 2,000	4,000
Bandar Abbas	3 x 2,000	6,000
Khorramabad	2 x 1,500	3,000
Borujerd	1 x 1,500	1,500
Zanjan	3 x 1,500	4,500
Ghom	3 x 1,500	4,500
Semnan	2 x 1,500	3,000
Ardebil	3 x 1,500	4,500
Rezaiyeh	3 x 1,500	4,500
Maragheh	3 x 1,500	4,500
Yazd	2 x 1,500	3,000
Khoy	2 x 1,200	2,400
Sanandaj	2 x 1,200	2,400
Neyshabur	2 x 1,200	2,400
Sabzevar	2 x 1,200	2,400
Malayer	3 x 750	2,250
Behshahr	3 x 750	2,250
Kazerun	3 x 750	2,250
Mahabad	3 x 750	2,250
Mianeh	3 x 750	2,250
Torbat Heydarieh	2 x 750	1,500
Total		80,350

e. Distribution networks in towns and some rural areas were expanded and modernized.

6 - Under the Third Plan, the electricity industry was organized in line with the expansion of plant. At first, the development of the electricity industry was entrusted to the former Iranian Electricity Authority, but since it proved unequal to the task of meeting the rapid growth of the power industry, a Ministry of Water and Power was formed towards the end of 1342. This took a major role in the expansion of the electricity industry, 10 regional electricity companies being established to carry out related activities.

The increase in capacity and the implementation of the tasks set under the Third Electricity Plan required Government investment, since the capital needed for carrying out programmes in the major load centres and large and medium-sized towns was beyond the means of private firms and municipalities. The provision of loans and credits would have placed an excessive amortization burden on the local authorities concerned, while the establishment of large-scale central generating stations, the satisfaction of the electricity requirements of industrial and agricultural enterprises in suburban areas and the transmission of power to nearby towns and villages came outside municipal jurisdiction and conflicted with their terms of reference. This was why the Third Plan provided for the establishment of regional and district electricity authorities and direct investment by the Government. The enactment of the Non-Government Electricity Utilities Act should also be mentioned as a major step in this context, since the Act stipulated that in cases where non-Government electricity utilities were for technical and financial reasons unable to meet urban and suburban electricity demand in accordance with the standards laid down in the Act, regional electricity companies should take over the installation concerned to ensure the satisfaction of local needs. The Act therefore meant that a large proportion of electricity installations had to be nationalized.

7 - The following measures were taken in the Third Plan period for the improvement of management and operation:

a. Improved service by a round-the-clock electricity supply in most town;

b. The training of engineers and technicians utilizing the same syllabus as industrial schools and technical colleges. Planning and execution of training programmes for 50 electricity engineers and specialists abroad and 200 inside the country;

c. Reductions in production costs by the installation of large-scale steam generators and power transmission lines and improvements to distribution networks;

d. Reductions in tariffs and improved tariff structure particularly for industrial requirements, in the Tehran and Khuzestan regions, as well as the lowering of local taxes on electricity sales.

EVALUATION

8 - One of the most serious problems of the electricity industry in Iran is the low industrial load and the installation by industrial undertakings of their own power stations. Production costs are therefore high, and since for various reasons rates have been set at a certain level, the electricity industry is, generally speaking, either operating at a loss or at best only making a small profit. The basic development of the electricity industry without Government investment or financial assistance therefore looks impossible in view of the slender profit margin. Meanwhile, if cheap, abundant and reliable supplies of electric power are not forthcoming, it is inevitable that industrial and other major consumers will install generating stations of their own.

The improvement of load factors and reliable supplies to industrial and other major consumers were envisaged in the Third Plan and considered in drawing up feasibility studies for the major load centres, but these targets have not been attained, except in a few industrial regions. Considering the time necessary for these projects to get under way, such activities will only come to fruition under the Fourth Plan.

9 - The Third Plan recommended, as a major policy aimed at the reorganization of the electricity industry, the establishment of the Iranian Electricity Authority together with regional and area electricity companies. With the establishment of the Ministry of Water and Power and ten regional electricity companies, the industry has gradually been put on a broader footing and granted wider executive powers.

10 - Although the first electricity scheme was elaborated under the Third Plan, the Plan recommended no measures for co-ordinating the utilization, distribution and consumption of different sources of energy. The difficulties encountered during the Plan period gradually engendered the idea of establishing an energy board to ensure the co-ordinated utilization, distribution and consumption of different sources of energy and preparations were made for its establishment.

11 - Another major difficulty facing the electricity industry is the shortage of skilled staff at different technical levels. Although various agencies with responsibility for electricity have been set up, the recruitment and training of personnel has taken place so slowly that most of them lack even technical and financial managers at the higher levels. For this reason, the take-over of electricity utilities in medium-sized towns and the expansion of distribution networks in urban centres have fallen behind schedule.

12 - At present, the electricity tariffs differ from one town to another. With the exception of Tehran and Khuzestan, day and night tariffs and flat rates are applied, without reference to consumption. Tariffs are generally based on the outdated method of the average cost per unit of electricity. Thus, the electricity tariff, which is one of the basic economic indices of the electricity industry, is rarely determined on the basis of scientific economic criteria, and this situation has created a major difficulty for the electricity industry in Iran.

13 - The executive agencies, particularly the Ministry of Water and Power, which has been responsible for the major part of electricity development in the country, have achieved remarkable successes. The following points are worth considering:

a. In accordance with the objectives of the Third Plan, the capacity required to meet general and industrial demand was estimated at 794,000 kilowatts, the cost of which had to be financed by the Government, the National Iranian Oil Company and the private sector. In practice, the capacity of generating plant purchased during the Third Plan period in the public sector alone (excluding the National Iranian Oil Company) amounted to about 777,000 kilowatts and with the 4 hydro-electric plants commissioned at the beginning of the Third Plan, the new capacity totalled 942,000 kilowatts. Thus, the Third Electricity Plan has proved a notable success in that the original targets have been exceeded.

b. For transmission, the Third Plan had only envisaged the construction of the Manjil-Rasht-Pahlavi and Manjil-Tehran lines. In addition, 465 kilometres of 230 kV line and 160 kilometres of 132 kV line and about 600 kilometres of 60 kV line will have been installed by the end of the Third Plan (Tables 3).

TABLE 3 — INSTALLATION OF TRANSMISSION LINES DURING THE THIRD PLAN PERIOD

Description	Voltage (Kilovolts)	Length (Kilometres)
Rasht-Pahlavi transmission line	132	100
Manjil-Tehran transmission line	230	240
Andimeshk-Shushtar-Masjed-i-Suleiman transmission line	132	160
Second circuit of Dez-Ahwaz-Abadan transmission line	230	270
Tehran ring circuit	230	100
Tehran-Gorgan transmission line	230	370

c. Another achievement of the Third Plan has been the reduction of the cost of generation, transmission and distribution installations. In most places, distribution networks were constructed more cheaply than before. Furthermore, costs have been below prevailing international levels.

d. In planning the development of the electricity industry, initial steps were taken to install a national grid in view of the long-term prospects. Preparations have already been made for those sections of the grid which have to be completed by the end of the Fourth Plan. This country-wide grid will link up, through 230 kV and 63 kV transmission lines, the Aras dam power station in north-east Iran, as well as other power stations, with consumption centres in East and West Azarbaijan and the region located on the northern and southern part of the Alborz mountains, extending as far as Gonbad-Ghabus.

The northern branch of this grid will be connected with the western part of the country, Khuzestan and Fars, through the Tehran power stations and the Mohammad Reza Shah Pahlavi dam with the Tehran transmission line and secondary lines. This branch of the grid will also hook up the central regions of the country with the Tehran power stations and Tehran-Esfahan transmission lines.

OVERALL OBJECTIVES OF THE FOURTH ELECTRICITY PLAN

14 - The major objectives of the electricity industry during the Fourth Plan are as follows:

a. Development of the electricity industry to meet industrial, agricultural, domestic, commercial, and street-lighting requirements through the installation of a national grid in a manner which is consistent with the country's other economic programmes, encourages industrial development, and makes it unnecessary for industrial and agricultural enterprises to install their own capacity.

b. Improving and perfecting the organization of the electricity industry so that:

i. by applying the latest engineering, management and planning principles, the losses at present sustained by the electricity industry are eliminated and the conditions conducive to the reduction of unit generating and distribution costs are created;

ii. organization on these lines will permit the financing of part of the investment needed for the future expansion of electricity installations.

SPECIFIC TARGETS AND PROGRAMMES

15 - The quantitative targets of the electricity industry regarding the satisfaction of industrial, agricultural, commercial and domestic requirements are as follows:

a. Demand for electric power, which was about 3.5 billion kilowatt-hours in 1344, is expected to reach 4.5 billion kilowatt-hours by the end of the Third Plan (1346) and 12 billion kilowatt-hours by the end of the Fourth Plan (1351). Of the latter figure, industrial demand should account for about 8.5 billion kilowatt-hours, with non-industrial demand absorbing 3.5 billion kilowatt-hours. Thus, electricity consumption will rise at an annual rate of 22 per cent during the Fourth Plan.

The annual per capita consumption of electricity, which has been about 140 kilowatt-hours, is expected to reach about 175 kilowatt-hours in 1346 and about 400 kilowatt-hours in 1351.

b. The electricity utilities will cover the bulk of industrial consumption and the entire non-industrial consumption. Their capacity should increase by about 1,621,000 kilowatts. Moreover, extensive use of transmission lines is necessary in order to improve load factors and the reliability of industrial power supplies.

c. Iranian electricity utilities had an installed capacity

TABLE 4 — INCREASE IN CAPACITY OF ELECTRICITY GENERATING INSTALLATIONS DURING THE FOURTH PLAN PERIOD (KILOWATTS)

Location	Type of generator	Number and capacity of each set	Total capacity
Central Region (Tehran, Khuzestan, Mazandaran, Gilan)	Steam	2 x 150,000	300,000
	Steam	2 x 100,000	200,000
	Hydro (Amir Kabir)	1 x 40,000	40,000
	Hydro (Mohammad Reza Shah Pahlavi Dam)	4 x 65,000	260,000
Mashhad	Steam	2 x 50,000	100,000
Esfahan	Steam	1 x 100,000	100,000
	Hydro (Shah Abbas the Great Dam)		40,000
Azarbaijan	Steam	2 x 50,000	100,000
	Gas turbine	2 x 25,000	50,000
	Hydro (Mahabad Dam)		6,000
	Hydro (Zarrineh Rud Dam)		10,000
	Hydro (Aras Dam)		21,000
	Hydro (Moghan Dam)		19,000
Fars	Gas turbine	3 x 15,000	45,000
	Hydro (Dorudzan Dam)		10,000
Kerman	Steam	3 x 30,000	90,000
Kermanshah	Steam	1 x 30,000	30,000
Medium-sized towns	Steam-Diesel		130,000
Small towns			70,000
Total generating capacity			1,621,000

of approximately 400,000 kilowatts in 1341. Capacity will rise during the Third Plan period by about 942,000 kilowatts. The new capacity to be installed during the Fourth Plan period is estimated at 1,621,000 kilowatts, of which about 200,000 kilowatts is obsolete capacity due for replacement. The total generating capacity of the country's electricity utilities will reach 2,763,000 kilowatts by the end of the Fourth Plan.

d. The generating capacity will show the following increases during the Fourth Plan period in the generating centres and towns:

i. Installation of new large-scale generating plant with a capacity of 1,421,000 kilowatts to supply Kerman and Khorasan regional networks and the national grid. The latter will interconnect electricity installations in the urban centres located in the regions of Tehran, Gilan, Mazandaran, Khuzestan, Esfahan, Azarbaijan, Fars and Kermanshah (Table 4).

ii. Installation of generating plant in medium-sized towns which are not supplied by transmission networks with a total capacity of about 130,000 kilowatts. (These medium-sized towns are listed in Table 5).

TABLE 5 — MEDIUM-SIZED TOWNS SELECTED IN THE FOURTH ELECTRICITY PLAN

1 — Semnan
2 — Sabzevar
3 — Sanandaj
4 — Zahedan
5 — Torbat-e Heydarieh
6 — Shahrud
7 — Birjand
8 — Bandar Abbas
9 — Zabol
10 — Bojnurd
11 — Abadeh
12 — Kashmar
13 — Ahar
14 — Sirjan
15 — Shahr-e Kord
16 — Golpayegan
17 — Ghasr-e Shirin
18 — Saghez
19 — Borujen
20 — Maku
21 — Mahallat
22 — Khomain
23 — Shirvan
24 — Sarab
25 — Torbat-e Jam
26 — Ghuchan
27 — Shahreza
28 — Twiserkan
29 — Sarvestan

iii. Provision of electricity for small towns which are not supplied by transmission networks and large generating centres. These towns will require small diesel generating facilities with a total capacity of about 70,000 kilowatts.

e. More new power transmission lines will be erected under the Fourth Plan than under the Third Plan. The total length of power transmission lines to be installed under the Fourth Plan is estimated at about 2,150 kilometres of 230 kV, 1,000 kilometres of 132 kV and 700 kilometres of 63 kV line (Table 6). The list of towns to be thus interconnected during the Fourth Plan period is shown in Table 7.

TABLE 6 — INSTALLATION OF POWER TRANSMISSION LINES DURING THE FOURTH PLAN

Description	Voltage (Kilovolts)	Length (Kilometres)
Mohammad Reza Shah Pahlavi Dam - Tehran transmission line	230	550
Transmission lines in Kermanshah-Hamadan Region	230	140
Tehran - Esfahan transmission line	230	400
Ghazvin-Tabriz transmission line	230	400
Ahwaz-Agha Jari-Gachsaran-Shiraz transmission line	230	500
Transmission lines in Kerman Region	132	600
Transmission lines in Azarbaijan Region	132	400
Mohammad Reza Shah Pahlavi Dam - Ahwaz transmission line	230	160

TABLE 7 — LIST OF TOWNS TO BE INTERCONNECTED BY THE END OF THE FOURTH PLAN

Central Grid

1 — Tehran
2 — Ghom
3 — Ghazvin
4 — Kashan
5 — Arak
6 — Hesarak
7 — Takestan
8 — Gorgan
9 — Sari
10 — Gonbad-e Ghabus
11 — Amol
12 — Shahi
13 — Babol
14 — Behshahr
15 — Shahsavar
16 — Firouzkuh
17 — Bandar Shah
18 — Babolsar
19 — Amir Kola
20 — Kordkuy
21 — Bandar Gaz
22 — Chalus
23 — Nowshahr
24 — Khorramabad Shahsavar
25 — Mahmudabad
26 — Ziba Kenar

Continued on next page

(Table 7 cont.)

27 — Katalom
28 — Chaboksar
29 — Bandar Pahlavi
30 — Lahijan
31 — Langerud
32 — Rudsar
33 — Astara
34 — Kelachay
35 — Hashtpar
36 — Lasht-e Nesha
37 — Kouchesfahan
38 — Nur
39 — Rudbar
40 — Alamdeh
41 — Khomam
42 — Rasht
43 — Komleh
44 — Tabriz
45 — Rezaiyeh
46 — Zanjan
47 — Mahabad
48 — Ardebil
49 — Maragheh
50 — Khoy
51 — Mianeh
52 — Marand
53 — Miandoab
54 — Shahpur
55 — Kermanshah
56 — Borujerd
57 — Khorramabad
58 — Malayer
59 — Dorud
60 — Kangavar
61 — Shahabad-e Gharb
62 — Hamadan
63 — Dezful
64 — Shushtar
65 — Masjed-i-Suleiman
66 — Abadan
67 — Ahwaz
68 — Khorramshahr
69 — Hoveizeh
70 — Susangerd
71 — Ghasabeh
72 — Andimeshk
73 — Bandar Shahpur
74 — Agha Jari
75 — Gachsaran
76 — Behbahan
77 — Shiraz
78 — Bushehr
79 — Jahrom
80 — Kazerun
81 — Fasa
82 — Marvdasht
83 — Zaraghan
84 — Borazjan
85 — Esfahan
86 — Najafabad
87 — Homayunshahr
88 — Masjed-i-Suleiman

South-eastern Grid
1 — Kerman
2 — Yazd
3 — Rafsanjan
4 — Bam
5 — Jiroft
6 — Baft
7 — Zarand
8 — Mahan
9 — Bafgh

Khorasan Grid
1 — Mashhad
2 — Neyshabur

f. Under the Fourth Plan, the renewal, repair and expansion of distribution networks will be carried out in all towns throughout the country to ensure the availability of capacity sufficient for the extra distribution provided for.

g. Rural electrification will be expanded through the installation of rural distribution networks in the outskirts of towns and consumption centres, and in certain cases, by setting up diesel generating facilities.

16 - Under the Fourth Plan, the organization and administration of the electricity industry should be improved in line with the expansion of plant. To place the electricity industry on a sound footing, the unit cost of production and distribution should be reduced considerably and the industry should in future be organized and administered in such a way as to be able to contribute part of the investment required for the expansion of capacity. The targets laid down under the Fourth Plan for the improvement of the organization of the electricity industry will include:

a. the preparation of co-ordinated fuel and power plans by the National Energy Council;

b. the planning of the electricity industry and the systematic review of its condition, making allowance for altered requirements and revised estimates;

c. putting all matters relating to electricity in the hands of the Ministry of Water and Power to ensure that this industry develops along co-ordinated and uniform lines and standardization in the development of the industry;

d. the provision of regular and reliable electricity services throughout the country by completing the nationalization of electricity undertakings so that by the end of the Fourth Plan period about 98 per cent of the capacity of the country's electricity utilities will have been nationalized;

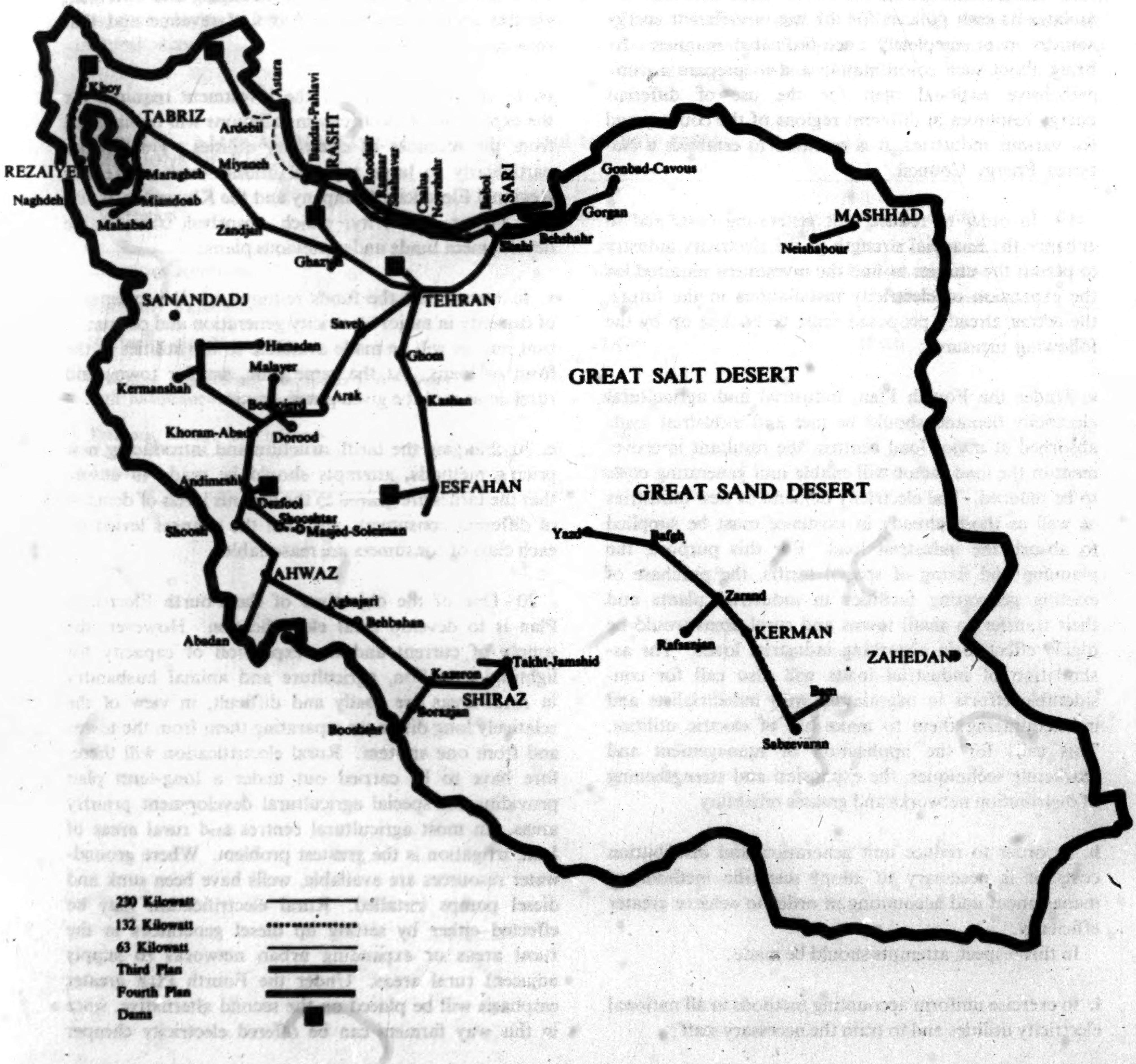
e. the preparation of training programmes and an increase in the number of specialized personnel, engineers and staff needed for the efficient management of the electricity industry;

f. the reduction of unit generating costs, the improvement of the tariff structure and the application of modern financial and administrative methods.

PRINCIPLES AND POLICIES OF THE ELECTRICITY INDUSTRY

17 - The electricity industry must be so organized during the Fourth Plan period that it can operate and expand the plant now being installed. It is therefore essential that besides the establishment of the National Energy Council, other measures must be taken to centralize executive activities, reduce unit production costs, improve the tariff structure and nationalize the industry.

POWER TRANSMISSION LINES AT THE END OF THE FOURTH PLAN


Khoy
TABRIZ
Ardebil
Astara
Bandar-Pahlavi
RASHT
REZAIYEH
Miyaneh
Maragheh
Naghdeh
Miandoab
Mahabad
Zandjan
Roodsar
Ramsar
Shahsavar
Chalus
Nowshahr
Babol
SARI
Gonbad-Cavous
Gorgan
Behshahr
Shahi
MASHHAD
Neishabour
Ghazvin
SANANDADJ
TEHRAN
Saveh
Hamadan
Ghom
Malayer
Kermanshah
Arak
GREAT SALT DESERT
Boroojerd
Kashan
Khoram-Abad
Dorood
Andimeshk
ESFAHAN
GREAT SAND DESERT
Dezfool
Shooshtar
Shoosh
Masjed-Soleiman
Yazd
Bafgh
AHWAZ
Aghajari
Zarand
Behbahan
Abadan
Rafsanjan
KERMAN
ZAHEDAN
Takht-Jamshid
Kazeroon
SHIRAZ
Borazjan
Bam
Booshehr
Sabzevaran
230 Kilowatt
132 Kilowatt
63 Kilowatt
Third Plan
Fourth Plan
Dams

18 - At present, the Ministry of Water and Power, the Ministry of Development and Housing, the Ministry of Economy, the Ministry of Agriculture and the National Iranian Oil Company are all involved in some way in fuel and power matters. Each of these agencies formulates its own policies for the use of different energy sources in a completely unco-ordinated manner. To bring about such co-ordination and to prepare a comprehensive national plan for the use of different energy resources in different regions of the country and for various industries, it is essential to establish a National Energy Council.

19 - In order to reduce unit generating costs and to enhance the financial strength of the electricity industry to permit the utilities to find the investment required for the expansion of electricity installations in the future, the action already proposed must be backed up by the following measures:

a. Under the Fourth Plan, industrial and agricultural electricity demand should be met and industrial loads absorbed at major load centres; the resultant improvement in the load factor will enable unit generating costs to be reduced. The electricity demand of new industries as well as those already in existence must be supplied to absorb the industrial load. For this purpose, the planning and fixing of special tariffs, the purchase of existing generating facilities in industrial plants and their transfer to small towns and rural areas would be highly effective in absorbing industrial loads. The assimilation of industrial loads will also call for considerable efforts in negotiating with industrialists and in encouraging them to make use of electric utilities. This calls for the application of management and marketing techniques, the expansion and strengthening of distribution networks and greater reliability.

b. In order to reduce unit generation and distribution costs, it is necessary to adopt scientific methods of management and accounting in order to achieve greater efficiency.

In this respect, attempts should be made:

i. to exercise uniform accounting methods in all national electricity utilities and to train the necessary staff;

ii. to take special care in the planning and implementation of electricity projects to ensure that new projects are economically justified;

iii. to ensure that the costs of managing and operating electric utilities are financed out of revenue and that reasonable profits are made;

iv. to ensure that part of the investment required for the expansion of electricity installations will be financed from the revenues of electricity utilities. This applies particularly to large regional utilities such as Tehran Regional Electricity Company and the Khuzestan Water and Power Authority, which absorbed considerable development funds under previous plans;

v. to ensure that the funds required for the expansion of capacity in major electricity generation and consumption centres will be made available to the utilities in the form of loans. At the same time, smaller towns and rural areas must be given grants-in-aid.

c. In changing the tariff structure and introducing new pricing methods, attempts should be made to ensure that the tariffs are geared to the various levels of demand of different consumers, and that the changes levied on each class of consumers are reasonable.

20 - One of the objectives of the Fourth Electricity Plan is to develop rural electrification. However, the supply of current and the expansion of capacity for lighting, irrigation, agriculture and animal husbandry in rural areas are costly and difficult, in view of the relatively long distances separating them from the towns and from one another. Rural electrification will therefore have to be carried out under a long-term plan providing for special agricultural development priority areas. In most agricultural centres and rural areas of Iran, irrigation is the greatest problem. Where groundwater resources are available, wells have been sunk and diesel pumps installed. Rural electrification may be effected either by setting up diesel generators in the rural areas or expanding urban networks to supply adjacent rural areas. Under the Fourth Plan greater emphasis will be placed on the second alternative, since in this way farmers can be offered electricity cheaper

than that produced by diesel generators and the load factor of urban generating centres can be increased. In rural areas electricity will initially be employed for irrigation and lighting purposes, gradually coming into use for other agricultural and animal husbandry activities, thus playing a highly effective role in raising agricultural income.

FINANCIAL APPROPRIATIONS OF THE SECTOR

21 - The cost of expansion of electricity installations during the Fourth Plan period, including generation, transmission and distribution, is estimated at Rials 48 billion, of which Rials 38 billion will derive from Fourth Plan allocations and 10 billion rials from consumers' loans to electric utilities. The breakdown of these allocations is shown in Table 8.

TABLE 8 — ALLOCATIONS REQUIRED DURING THE FOURTH PLAN (MILLIONS OF RIALS)

Description	From development funds	From revenues of electric utilities	Total
Electricity generation	12,112	5,600	17,712
Electricity transmission	8,100	—	8,100
Electricity distribution	12,470	4,400	16,870
Provision of electricity for towns and villages with independent supply system	3,821	—	3,821
Training, studies and research	1,497	—	1,497
Total	38,000	10,000	48,000

[illegible]

[illegible] the Fourth [illegible] is to develop [illegible] electrification. [illegible] supply of current and the expansion of capacity [illegible] in rural areas [illegible] the most backward towns and rural areas [illegible] amenities of the present civilisation. Where power [illegible] has been built, and [illegible] installed. [illegible] Under the Fourth Plan greater emphasis will be placed on [illegible] and in this way [illegible]

PART 3

INFRASTRUCTURAL SECTORS

CHAPTER 12

TRANSPORT AND COMMUNICATIONS

I. TRANSPORT

INTRODUCTION

1 - Economic development is a product of an increasing volume of industrial, agricultural and mining output and the expansion of trade, as well as the improved distribution of manufactured goods and services throughout a given country. Needless to say, this cannot be achieved unless an adequate system of communications is set up and transport facilities are provided.

At present various types of transport are used in Iran, and in principle, no one facility could replace others, or could be relied on to the exclusion of all others, since each has its own characteristics and special features. It is only through conducting adequate geographical and economic surveys and by determining the quantity and type of goods which are to be transported in a particular region that one can identify the type of transport facilities which will prove to be the most economic. It is necessary, therefore, from the economic standpoint, and with due consideration to the potentialities and resources available in the country, that various types of communication facilities (roads, railroads, ports and airports) should be mobilized for economic development purposes.

In view of the above, the adoption of a comprehensive transport policy, which would determine the method and extent of utilization of any one of the existing facilities within the overall economy, is of paramount importance; so much so that in many countries in the world, a special organization or ministry has been organized to determine transport policy in relation to the general economic policy. In Iran, where the need for transport facilities, considering the economic development requirements, is constantly growing and where reduced transport costs are essential, the determination of a general transport policy becomes an increasing necessity. Unfortunately, determining such a policy is difficult, owing to the lack of statistical information. Therefore, in this section it has been attempted to examine data collected from various official sources (such as the State Railways, the Ports and Customs authorities, etc.) and also from unofficial sources (private transport companies, garages, etc.) so that the transport requirements during the Fourth Plan period can, as far as

TABLE 1 — PROPORTION OF GOODS IMPORTED THROUGH BANDAR SHAHPUR AND KHORRAMSHAHR TRANSPORTED BY RAIL AND ROAD
(THOUSANDS OF TONS)

Year	Total imports through Bandar Shahpur and Khorramshahr	Percentage of transport of goods by rail	Percentage of transport of goods by road	Remarks
1338	1,158	56.8	43.2	The proportion of transport of goods by rail has been computed on the basis of the loading capacity and the total volume of imports at the ports.
1339	1,478	54.6	45.4	
1340	1,202	53.1	46.9	
1341	1,267	41.7	58.3	
1342	1,132	36.8	63.2	
1343	2,021	39.3	60.7	

TABLE 2 — FLUCTUATIONS IN THE VOLUME OF RAIL TRAFFIC FROM 1339 TO 1344

a. Passengers carried by rail

Year	Number of passengers
1339	4,031,921
1340	3,975,414
1341	3,909,407
1342	4,034,177
1343	3,614,621
1344	2,860,562

b. Goods transported by rail

Year	Passenger goods (tons)	Commercial goods (tons)	Animals (head)	Automobiles (units)
1339	81,189	3,350,589	670,531	1,719
1340	78,190	3,076,625	747,551	1,340
1341	89,762	2,375,090	706,089	1,181
1342	70,434	2,175,678	486,499	2,507
1343	52,887	3,285,477	408,540	2,966
1344	50,143	3,728,038	439,150	3,144

possible, be anticipated. Detailed and basic studies, aimed at obtaining statistical data to determine the orientation and trend of transporting goods within the country, will be carried out during the Fourth Plan.

TRANSPORT DURING THE THIRD PLAN

2 - The disequilibrium and imbalance of the private sector's load-distribution between railroads and roads, the relative importance of the transport of oil products as against that of other goods within the country, as seen in Tables 1 to 4, and unplanned and uncontrolled fluctuations in transport charges formed the chief characteristics of transport during the Third Plan.

a. Road transport

The transport of goods (excluding oil products) carried long distances by trucks has been estimated at 4 billion ton-kilometres during 1344. The transport of goods over short distances is estimated to account for an additional 4.5 to 5 billion ton-kilometres. The quantity of oil products transported within the country by road has been estimated at 770 million ton-kilometres during 1344, which amounted to one sixth of all oil products transported inside the country (Table 4). The majority of goods were transported along major routes. Traffic on other routes has not been very considerable. The Khorramshahr-Bandar Shahpur-Tehran road accounts for more than 50 per cent of all transport. Other routes with heavy traffic being:

Tehran-Tabriz
Tehran-Gorgan-Mashhad
Tehran-Gonbad-e Ghabus
Tehran-Esfahan-Shiraz

TABLE 3 — PROPORTIONS OF PUBLIC AND PRIVATE SECTOR GOODS TRANSPORTED BY RAIL

Owner of goods	1343 (per cent)	1344 (per cent)
National Iranian Oil Company	50.7	52.7
Government agencies and corporations	31.1	28.1
Private sector	18.2	19.2
Total	100.0	100.0

TABLE 4 — USE OF VARIOUS MEANS OF TRANSPORT CARRYING OIL PRODUCTS FROM 1962 TO 1966 (1) (MILLIONS OF TON-KILOMETRES)

Means of transport	1962	1963	1964	1965	1966
Road-tankers (contracted)	416	410	486	627	791
Rail-tankers	662	641	1,171	1,238	1,180
Sea and river tankers (contracted)	26	22	23	29	40
Sea and river tankers (NIOC)	7	—	—	—	—
Road tankers (NIOC)	152	157	147	143	152
Pipelines	2,135	2,320	2,731	2,863	3,139
Total	3,398	3,550	4,558	4,900	5,302

AVERAGE NUMBER OF ROAD TANKERS IN USE (NIOC AND CONTRACTED) 1962-1966

	1962	1963	1964	1965	1966
NIOC	383	373	357	356	351
Contracted	1,026	966	1,126	1,384	1,478
Total	1,409	1,339	1,483	1,740	1,829

AVERAGE DISTANCE COVERED BY EACH TON OF OIL PRODUCTS FOR DOMESTIC DISTRIBUTION FROM 1962 TO 1966 (KILOMETRES)

	1962	1963	1964	1965	1966
Average distance covered	957	960	1,065	1,050	1,056

(1) In this table the years are given in the Gregorian calendar according to oil industry practice.

TABLE 5 — NUMBER OF VEHICLES REGISTERED, 1334 to 1343*

Year	Passenger cars	Buses and Trucks	Motorcycles	Total
1334	33,773	26,927	—	60,700
1335	41,210	26,596	—	67,806
1336	52,669	32,544	—	85,213
1337	67,297	35,606	—	102,903
1338	79,580	39,300	8,426	127,306
1339	94,280	43,559	11,608	149,477
1340	97,409	42,512	11,955	151,876
1341	106,095	39,357	12,213	157,665
1342	122,447	46,958	10,408	179,813
1343	144,168	58,533	14,548	217,249

* Statistics are only available up to 1343.

TABLE 6 — STATISTICS OF ROAD ACCIDENTS IN IRAN

Year	Total number of accidents	Number of persons injured	Number of persons killed
1340	139	234	91
1341	276	390	92
1342	554	759	138
1343	532	505	60
1344	808	638	118

It may be seen that all heavy traffic roads are constructed parallel to existing railway lines or lines to be constructed during the Fourth Plan. Statistics relating to the number of vehicles and accidents in the country are given in Tables 5 and 6.

b. International road transport

The volume of international transport of goods by road has been insignificant and constantly fluctuating during the past years, depending upon the economic and political situation governing the neighbouring countries. Only a limited number of private Iranian agencies deal with the transport of goods abroad. The major portion of such transport consists of imports from neighbouring countries with some exports. Quantities of imports and exports transported by truck in 1343 are as follows:

1. Imports

From the USSR	600,000 tons per year
From Turkey	60,000 tons per year
From Iraq	5,000 tons per year
From India & Pakistan	10,000 tons per year
From Afghanistan	10,000 tons per year

2. Exports*

To Europe via Turkey	5,000 tons per year
To Iraq (average over several years)	20,000 tons per year
To Afghanistan, approximately	20,000 tons per year (oil products)

c. Passenger road transport

Passenger transport on the roads is constantly rising. An estimate made of the number of passengers transported for long distances, based on the capacity of existing coaches and their operation, amounted to 7.2 billion passenger-kilometres per year; transport of passengers to suburbs and short distances has been estimated at 2.5 billion passenger-kilometres per annum.

d. Rail transport

Tables 3 and 4 give the volume of goods and passengers transported during recent years by railroad. In this case also, 70 per cent of all goods transported by rail relate to the Khorramshahr-Bandar Shahpur-Tehran line. The available statistics show that transport by railroad is dependent upon the general economic conditions of the country. Thus, during the years 1341 and 1342, the volume of transport by railroad was reduced, but thereafter it increased. Fluctuations in the volume of transport of goods by rail has been largely dependent upon imports of wheat during recent years. On the other hand, approximately 50 per cent of all goods transported consisted of oil products and 80 per cent of all goods transported belonged to Government agencies and companies (Table 3).

The average distance for goods transported by railroad during 1343 was 600 kilometres Passenger transport by railroad between 1342 and the present has been substantially reduced. The average distance covered by each passenger in 1343 was approximately 390 kilometres.

e. Sea transport

Fluctuations in the transport of the total volume of goods exported and imported through Iranian ports are shown in Tables 7 and 8. These statistics show that the Khorramshahr-Bandar Shahpur complex sustains 85 per cent of the total traffic, and that the ratio of exports to imports is very low. Khorramshahr and Bandar-Shahpur are therefore the starting points tor the distribution of most imported goods and the destination for many exported goods.

Major ports for the transport of oil products are Abadan, Bandar Mahshahr and Kharg. Oil exports from these ports are given in Table 9.

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* Exports to the USSR have been only by ship and rail.

TABLE 7 — CARGO HANDLED AT SEA PORTS
(THOUSANDS OF TONS)

Year	1338	1339	1340	1341	1342	1343
Imports and exports	1,600	1,900	1,700	1,750	1,550	2,800

TABLE 8 — APPROXIMATE RATIO OF TRAFFIC OF GOODS THROUGH PORTS, EXCLUDING OIL PRODUCTS, IN 1343
(THOUSANDS OF TONS)

	Imports	Exports
Khorramshahr	1,200	300
Bandar Shahpur	920	1
Bushehr	55	20
Bandar Abbas	34	105
Bandar Pahlavi	70	69
Nowshahr	2.5	22

TABLE 9 — OIL EXPORTS (CRUDE AND PRODUCTS) FROM BANDAR MAHSHAHR, KHARG AND ABADAN TERMINALS
(THOUSANDS OF CUBIC METRES)

		Bandar Mahshahr		Kharg		Abadan		
	Year	Number of ships	Amount	Number of ships	Amount	Number of ships	Amount	Total Exports
1.	1335	748	16,316	—	—	745	12,097	28,413
2.	1336	958	22,169	—	—	854	16,432	38,601
3.	1337	1,215	28,018	—	—	846	15,800	43,818
4.	1338	1,253	33,753	—	—	762	16,128	49,881
5.	1339	1,192	36,389	80	2,609	890	17,471	55,469
6.	1340	1,149	36,706	367	11,814	707	14,692	63,212
7.	1341	1,239	38,922	418	14,874	858	17,430	71,226
8.	1342	1,246	43,533	455	18,218	806	17,719	79,470
9.	1343	1,301	47,557	585	25,620	784	17,476	90,653
10.	1344	1,272	47,924	624	32,978	748	17,442	98,344

f. Air transport

The average annual increase in air traffic from 1334 to 1346 has been between 23 and 24 per cent. During 1344, there were on average 138 domestic flights per week from various airports. The number of inland passengers, which amounted to 38 thousand in 1334, reached 250 thousand in 1344. Natural and geographic conditions and the large distances between major cities justify heavier air traffic in future years. The largest number of passengers travel the Tehran-Mashhad and Tehran-Tabriz routes, which account for up to 50 per cent of total air passengers. On some air routes, the

TABLE 10 — SALES OF AIRCRAFT FUEL AT AIRPORTS, 1341-1345
(THOUSANDS OF CUBIC METRES)

	Domestic aircraft (at all airports)		Foreign aircraft (Mehrabad-Abadan)	
Year	Quantity sold	Percentage increase over previous year	Quantity sold	percentage increase over previous year
1341	51	—	91	—
1342	52	2	86	5.5
1343	64	23	91	5.8
1344	66	3	102	12
1344	85	29	106	4

low tariffs in relation to the cost price formed one of the characteristics of air traffic during this period. In order to conform to sound commercial principles, a revision in the tariff structure is essential.

The rate of increase in internal and external air traffic may be determined by an examination of the amount of aircraft fuel sales during recent years as outlined in Table 10.

FUTURE TRANSPORT PROBLEMS AND THEIR SOLUTION

3 - It is intended that only general subjects, which are important from the economic viewpoint and to which particular attention should be paid during the Fourth Plan, be discussed here. The subjects selected are:

a. the role of import-export gateways in the future or the starting point and destination of import and export goods;

TABLE 11 — ORIGIN AND DESTINATION OF GOODS EXCHANGED BETWEEN MAJOR REGIONS OF IRAN DURING 1343 (EXCLUDING OIL PRODUCTS, PETROCHEMICALS AND EXPORTED ORES)
(THOUSANDS OF TONS)

Origin/Destination	1	2	3	4	5	6	7
1. Central Province	463	180	47	361	97	43	43
2. Gilan	18	6	0	14	15	12	0
3. Northern ports	0	42	0	48	0	0	0
4. Mazandaran	19	56	0	6	0	12	0
5. Jolfa	0	0	0	0	0	28	0
6. East Azarbaijan	0	56	22	22	45	12	0
7. West Azarbaijan	0	50	2	0	10	7	0
8. Kermanshah	4	0	0	0	0	10	0
9. Khorramshahr-Bandar Shahpur	132	0	0	57	0	0	0
10. Khuzestan	18	0	0	0	0	8	0
11. Bushehr	0	0	0	0	0	0	0
12. Fars	0	0	0	0	0	0	0
13. Bandar Abbas	0	0	0	0	0	0	0
14. Kerman	0	0	0	0	0	0	0
15. Khorasan	0	7	0	6	0	0	0
16. Esfahan	0	0	0	10	0	0	0
17. Kordestan	0	0	0	0	0	6	0
18. Baluchestan	0	0	0	0	0	0	0
19. Miscellaneous	0	39	0	26	0	0	0
Total	654	436	71	550	167	138	43

b. the role of the railway in internal transport;

c. navigation in the Persian Gulf and communication with domestic and neighbouring ports;

d. national requirements for feeder and rural roads.

4 - The role of import-export gateways.

As has already been mentioned, at present 85 per cent of all import-export goods are transported through the northern ports of the Persian Gulf. As a result, the communication lines between such ports with the centre of the country sustain the major portion of domestic traffic. The capacity of these ports together with that of Bandar Abbas will not be adequate to meet transport requirements for all import-export goods in the future. The basic problem therefore consists of estimating the volume of imports and exports in coming years and of anticipating the establishment of installations and providing for equipment in various ports so that their capacities will meet national requirements. A general study of imports and exports should be concomitant with the identification of the inward and outward gateways involved. It is anticipated that changes will be brought about in the future in the transport of import-export goods. Such changes will be dependent upon transit agreements between Iran and neighbouring countries and on the rate of increase in the volume of trade with Eastern European countries. As regards transit routes, the importance of the Volga-Don maritime route in the USSR, which connects the Baltic Sea to the Caspian, and also the possibility of using the port of Iskanderun in Turkey via a railroad connection between the two countries, and to some extent the utilization of facilities of such ports as Karachi and Bombay, should Iranian trade become directed towards the southern seas, must not be overlooked. The volume of imports to Iran may also be raised as a result of the linking of the Iranian and European rail systems. Preliminary studies show that despite the lack of information concerning the ratio of traffic through the different gateways, and without allowing for exports of goods such as petrochemicals, which will be handled through special facilities, it is necessary to increase the capacity of Persian Gulf ports, taking into consideration internal regions relying on each port for the distribution of goods. In this connection, studies have shown that the present capacity of Bandar Abbas will be adequate to meet requirements made on it for the next few years; and considering the geographic and socio-economic condi-

							Total Imports = 2,339			Total Exports = 548	
9	10	11	12	13	14	15	16	17	18	19	20
583	0	0	0	0	3	185	0	0	0	10	2,015
88	0	0	0	0	0	0	0	0	0	0	153
0	0	0	0	0	0	0	0	0	0	0	90
106	0	0	0	0	0	2	0	0	0	0	201
0	0	0	0	0	0	0	0	0	0	0	28
263	0	0	0	0	0	0	0	21	0	0	441
61	0	0	0	0	0	0	0	0	0	0	130
140	0	0	0	0	0	0	0	0	0	0	154
00	115	0	0	0	0	0	0	0	0	0	304
146	0	0	0	0	0	0	10	0	0	0	182
0	0	0	20	0	0	0	0	0	0	0	20
80	0	30	75	23	0	0	19	0	0	0	227
0	0	0	0	0	106	0	0	0	0	0	106
54	0	0	90	8	0	0	17	0	0	0	169
119	0	0	0	0	0	150	0	0	0	0	362
183	0	41	5	0	0	5	0	0	0	0	244
30	0	0	0	0	0	0	0	0	0	0	36
12	0	0	0	4	0	2	0	0	0	0	18
50	0	0	50	0	0	0	130	0	0	225	520
1,695	115	71	240	35	104	344	176	21	0	235	5,400

tions of ports situated in the north of the Persian Gulf. the development of Bandar Shahpur will be necessary for economic reasons. In order to facilitate the exchange of commodities with the northern and eastern countries of Europe, and with special reference to major existing agreements, it will also be necessary to increase the capacity of the Caspian Sea ports. In this respect. surveys of economic feasibility for the construction of a new port in the north to be connected to the railway system seems essential. In any case, with increasing traffic through northern ports, special attention should be given to the communication links of ports and frontiers of this area (Tables 11-13). The utilization of the port of Iskanderun should be carefully examined from the economic viewpoint, upon the completion of Irano-Turkish rail link. At present, its capacity and installations do not permit anticipation of a sizeable volume of traffic through this port; however, any future use of such ports first requires a comprehensive survey. In view of these factors, the following points should be determined:

a. considering the capacity and potential of Bandar Abbas and its hinterland. What is the quantity of import-export goods to go through this port?

b. as regards the import trade, to what extent should the capacity of Bandar Shahpur be increased?

c. what should be capacities of the Caspian Sea ports and their communications routes?

d. what provisions should be made to equip other import gateways in view of existing transit agreements?

The above questions cannot be answered unless detailed and comprehensive studies are made. The implementation of such studies has therefore been delegated to specialized consultants. However, the development of ports located in the Persian Gulf seems highly essential. The decision has been taken, therefore, to develop Bandar Shahpur even assuming that the total capacity of Bandar Abbas will be utilized. Furthermore, since the full use of ports will not be economical unless they are linked to the central region of the country by economic means of communication, a highway linking Bandar Abbas to Shiraz and other linking

TABLE 12 — ORIGIN AND DESTINATION OF GOODS EXCHANGED BETWEEN MAJOR REGIONS OF IRAN DURING 1351 (EXCLUDING OIL PRODUCTS, PETROCHEMICALS AND EXPORTED ORES, AND ASSUMING CAPACITY OF BANDAR ABBAS TO BE 900,000 TONS)
(THOUSANDS OF TONS)

Origin Destination		2	3	4	5	6	7	8
1. Central Province	653	423	230	615	295	5	26	200
2. Gilan	9	6	55	6	45	15	0	0
3. Northern ports	40	40	0	40	0	40	15	0
4. Mazandaran	0	6	80	6	0	12	0	0
5. Jolfa	55	20	0	15	0	40	20	0
6. East Azarbaijan	0	6	75	23	130	5	35	0
7. West Azarbaijan	0	0	40	0	30	5	0	0
8. Kermanshah	0	17	0	17	0	14	0	0
9. Khorramshahr-Bandar Shahpur	220	0	0	55	0	0	0	19
10. Khuzestan	0	0	0	0	0	14	0	0
11. Bushehr	0	0	0	0	0	0	0	0
12. Fars	0	0	0	0	0	0	0	0
13. Bandar Abbas	30	0	0	0	0	0	0	0
14. Kerman	0	0	0	0	0	0	0	0
15. Khorasan	0	20	120	20	0	0	0	0
16. Esfahan	0	0	0	10	0	0	0	0
17. Kordestan	0	0	0	0	0	3	0	0
18. Baluchestan	0	0	0	0	0	0	0	0
19. Miscellaneous	0	31	0	0	0	0	0	0
Total	1,007	569	600	807	500	153	96	219

Bandar Abbas to the Esfahan-Bafgh railway have been considered essential and these links have been recommended in the Fourth Plan.

5 - The role of railways in domestic transport.

Apart from the transportation of raw materials and products related to the Steel Mill along the new rail link Zarand-Bafgh-Esfahan, there will not be much rail traffic if the present policy is continued. As has already been stated, oil products and imports of wheat have accounted for the major portion of goods transported by rail during recent years. Henceforth, the transport of oil products will be gradually switched to pipelines, and imports of wheat, as a result of agricultural and irrigation development programmes, should only reach the 1343-1344 levels in years of exceptional drought. It can be concluded that a proper and clear-cut policy for the distribution of goods, using all means of transport available in the country, should be developed so that the total capacity of the railway system and the existing capital plant may be properly utilized. This requires a revision of the rate structure and the introduction of a commercial policy in the administration of the State Railways. Considering particularly the fact that all major traffic routes, i.e., railways and first-class roads, are situated along the same axes, regulations should permit uniform competitiveness between the two systems. If such a policy is not adopted, the country will lose the benefit of a major portion of investments made for building such facilities, and the need will proportionately increase for new investments to provide for other facilities.

In this connection, it must be remembered that transport charges for trucks on highways cover only a very small portion of road maintenance and are very flexible. These rates vary on different roads according to transport conditions, the quantity of goods and distances involved, but in fact none of these factors has been taken into consideration in determining railway tariffs. Thus, the continuation of the present policy will produce undesirable results. As far as the transport of passengers is concerned, a new policy should be adopted in order that the railways should become competitive with road and air transport.

Total imports = 4,330
Total exports = 1,475

9	10	11	12	13	14	15	16	17	18	19	20
670	143	0	0	0	0	543	95	80	0	30	4,108
90	19	0	0	0	0	20	0	0	0	0	265
0	0	0	0	0	0	0	0	0	0	25	200
105	18	0	0	0	0	0	40	0	0	0	267
0	0	0	0	0	0	0	0	0	0	25	175
360	64	0	0	0	0	0	63	0	0	0	761
57	12	0	0	0	0	0	14	0	0	0	158
224	22	0	0	0	0	0	35	0	0	0	329
0	132	0	23	0	0	108	135	0	0	218	940
472	0	0	55	0	0	0	325	0	0	0	866
0	0	0	0	0	0	0	0	0	0	0	0
25	21	45	0	120	0	0	50	0	0	0	281
0	0	0	40	0	30	15	65	0	10	0	160
0	10	0	13	98	0	0	20	0	0	0	141
120	34	0	0	30	0	0	40	0	0	0	434
285	54	75	35	170	2000	25	0	0	25	0	2,729
42	12	0	0	0	0	0	9	0	0	0	66
0	10	0	0	22	0	0	7	0	0	0	39
0	0	0	0	0	0	0	0	0	0	10	41
2,450	551	120	166	440	2030	711	898	80	35	308	11,960

6 - Navigation in the Persian Gulf.

Maritime communications between ports, export shipments across the Persian Gulf, and also the future use of Bandar Abbas as a main forwarding port for the transport of goods arriving by sea to the northern ports of Persian Gulf, provide reasons which, in addition to their political and social aspects, require the establishment of regular Iranian navigation lines in the Persian Gulf between domestic and foreign ports in this region. Through the establishment of such lines, and subject to mutual agreement with neighbouring countries, it will be possible to use, as the need arises, the facilities of ports in neighbouring countries which are located on the major sea trade routes for import and export purposes. Preliminary steps for the establishment of a Persian Gulf navigation company have been taken, and it is hoped that regular services may soon be provided by the company between the southern ports and islands of Iran and the ports of the neighbouring countries, which will also have a bearing on the maximum utilization of the capacity of Bandar Abbas facilities.

7 - National requirements for feeder and rural roads.

Feeder and rural roads are extremely important in the overall transport situation in Iran, and should be heavily emphasized, since a major part of the transport programme has been stipulated in anticipation of the development and growth of the agricultural sector. A preliminary survey has indicated that the length of existing roads only amounts to a third of the minimum requirement for roads under present circumstances. There is therefore a great demand for such roads, and the preparation of a programme aimed at meeting this need should be based on justifiable technical and economic principles. Lack of attention to this issue will lead to the failure of agricultural programmes, which will in turn affect all problems related to transport, traffic, the provision of facilities and equipment in ports and roads, and ways of solving them. Due consideration should therefore be given to the construction of economic, agricultural and rural roads during the Fourth Plan. Furthermore, the implementation of expensive and unnecessary road-construction projects should be avoided during the Fourth Plan period, and instead economically justified feeder and rural roads should be constructed

TABLE 13 — ORIGIN AND DESTINATION OF GOODS EXCHANGED BETWEEN MAJOR REGIONS OF IRAN DURING 1351 (EXCLUDING OIL PRODUCTS, PETROCHEMICALS AND EXPORTED ORES, AND ASSUMING CAPACITY OF BANDAR ABBAS TO BE 600,000 TONS)
(THOUSANDS OF TONS)

Origin/Destination	1	2	3	4	5	6	7	8
1. Central Province	653	423	230	615	295	5	26	200
2. Gilan	9	6	55	6	45	15	0	90
3. Northern ports	40	40	0	40	0	40	15	0
4. Mazandaran	0	6	80	6	0	12	0	0
5. Jolfa	55	20	0	15	0	40	20	0
6. East Azarbaijan	0	6	75	23	130	5	35	0
7. West Azarbaijan	0	0	40	0	30	5	0	0
8. Kermanshah	0	17	0	17	0	14	0	0
9. Khorramshahr-Bandar Shahpur	250	0	0	55	0	0	0	19
10. Khuzestan	0	0	0	0	0	14	0	0
11. Bushehr	0	0	0	0	0	0	0	0
12. Fars	0	0	0	0	0	0	0	0
13. Bandar Abbas	0	0	0	0	0	0	0	0
14. Kerman	0	0	0	0	0	0	0	0
15. Khorasan	0	20	120	20	0	0	0	0
16. Esfahan	0	0	0	10	0	0	0	0
17. Kordestan	0	0	0	0	0	3	0	0
18. Baluchestan	0	0	0	0	0	0	0	0
19. Miscellaneous	0	31	0	0	0	0	0	0
Total	1,007	569	600	807	500	153	96	219

so as to meet the immediate needs for opening up regions with agricultural potential and connecting them with other parts of the country. The determination of routes within the framework of related development projects is therefore highly essential.

It is also necessary that all projects relating to industry and mining should be coordinated with transport and communication projects required to link development centres.

8 - Domestic Transport Trends.

A study has been made of domestic transport trends by calculating the consumption and production of various types of goods in each region, examining available official statistics, and making inquiries from transport agencies. The result of the study has been summarized in Tables11, 12 and 13 for heavily populated provinces and cities for the years 1343-1351. The table relating to 1351 has been prepared with due consideration for the establishment of industrial and agricultural centres during the Fourth Plan and the increase in imports and exports of production and consumption in each region. The preparation of these tables has been limited to the study of the direction and trends of the following main categories of transport:

— imports up to the frontiers of Iran:

— trends in domestic transport for the distribution of imports to major centres of consumption;

— trends in the transport of export commodities from centres of production to the frontiers from which they are exported;

— trends in the transport of foodstuffs from areas of production to centres of consumption;

— trends in the transport of major industrial products from centres of production to centres of consumption and traffic between industrial centres.

These tables will determine the direction, trends and the quantity of goods transported between various regions of the country without specifically identifying

Total imports = 4,330
Total exports = 1,475

9	10	11	12	13	14	15	16	17	18	19	20
770	145	0	0	100	0	543	95	80	0	30	4,108
90	19	0	0	0	0	20	0	0	0	0	265
0	0	0	0	0	0	0	0	0	0	25	200
105	18	0	0	0	0	0	40	0	0	0	267
0	0	0	0	0	0	0	0	0	0	25	175
360	64	0	0	0	0	0	63	0	0	0	761
57	12	0	0	0	0	0	14	0	0	0	158
224	22	0	0	0	0	0	35	0	0	0	329
0	132	0	13	0	0	98	105	0	0	218	860
472	0	0	55	0	0	0	325	0	0	0	866
0	0	0	0	0	0	0	0	0	0	0	0
45	21	45	0	140	0	0	50	0	0	0	281
0	0	0	50	0	30	25	95	0	10	0	240
0	10	0	13	98	0	0	20	0	0	0	141
170	34	0	0	80	0	0	40	0	0	0	434
335	54	75	35	220	2,000	25	0	0	25	0	2,729
42	12	0	0	0	0	0	9	0	0	0	66
0	10	0	0	22	0	0	7	0	0	0	39
0	0	0	0	0	0	0	0	0	0	10	41
2,670	551	120	166	660	2,030	711	898	80	35	308	11,960

the routes or type of transport used. The volume of transport on each route, and the distribution of cargoes among available facilities in each region, assuming that the transport of goods will largely be carried along the cheapest routes, have all been calculated (Tables 14 and 15). The importance of determining the role of the railways and the quantity of cargo reaching each port is made clear in these tables. These calculations are made on the assumption that an economic policy for transport will permit the railway system to carry 45 per cent of the total load. Calculations have also been made for the utilization of the various facilities at the port of Bandar Abbas. From the above studies and calculations made on the basis of related statistics, the economic pattern of transport in the country may be determined, taking into consideration the cost of establishing new facilities and installations and transport charges. Such a pattern will permit the maximum utilization of the capacity of existing facilities and will determine the country's requirements for new facilities whether purchased or manufactured.

9 - What has been stated above is an outline of the factors which should be taken into consideration in connection with the question of transport in the Fourth Plan. The communications Plan, which has been prepared with due reference to the above studies, is now presented.

TABLE 15 — BREAKDOWN OF DISTRIBUTION OF IMPORTS THROUGH BANDAR ABBAS AND OTHER PERSIAN GULF PORTS IN 1351
(THOUSANDS OF TONS)

Province	Imports through Persian Gulf (excluding Bushehr)	Bandar Abbas Capacity = 600,000 tons (Imports = 440,000 tons)		Bandar Abbas Capacity = 900,000 tons (Imports = 660,000 tons)	
		Bandar Abbas	Khorramshahr Bandar Shahpur	Bandar Abbas	Khorramshahr Bandar Shahpur
Central Province	770	0	770	100	670
Fars	165	120	45	140	25
Esfahan	505	170	335	220	285
Kerman	98	98	0	98	0
Sistan and Baluchestan	22	22	0	22	0
Khorasan	200	30	170	80	120
Total	1,760	440	1,320	660	1,100

TABLE 15 — TRANSPORT ON MAJOR ROADS DURING 1343 AND PROJECTION FOR 1351 (THOUSANDS OF TONS)

Route	Distance (Kilometres)	1343			1351		
		Outward journey	Return journey	Total	Outward journey	Return journey	Total
Tehran-Khorramshahr	1,100	400	1,200	1,600	650	1,000	1,650
Tehran-Tabriz	600	400	765	1,165	320	800	1,120
Tehran-Rasht	340	50	200	250	120	540	660
Tehran-Chalus	200	20	50	70	50	180	230
Tehran-Gonbad-e Ghavus	500	200	400	600	350	500	850
Tehran-Mashhad	910	200	200	400	300	300	600
Tehran-Esfahan	420	200	240	440	300	250	550
Tehran-Shiraz	920	130	170	300	200	250	450
Tehran-Kerman	1,080	40	40	80	100	100	200
Tehran-Tabriz	1,620	35	35	70	50	50	100
Khorramshahr-Tabriz	1,350	10	100	110	50	200	250
Khorramshahr-Shiraz	620	15	30	45	25	50	75
Khorramshahr-Esfahan	950	45	55	100	50	70	120
Bandar Abbas-Tehran	1,580	15	55	70	100	80	180
Bandar Abbas-Kerman	560	15	30	45	90	50	140
Bandar Abbas-Esfahan	1,170	15	15	30	150	70	220
Bandar Abbas-Shiraz	675	30	45	75	160	70	230
Bandar Abbas-Zahedan	1,100	5	0	5	20	5	25
Shiraz-Kerman	560	10	15	25	10	15	25
Shiraz-Bushehr	300	30	30	60	45	45	90
Mashhad-Zahedan	990	2	2	4	5	5	10

II. COMMUNICATIONS

INTRODUCTION

10 - In light of the above account of transport, the role of communications as an infrastructural element for social and economic development is seen to be vital in a developing country. Market development and stimulation, and access to the full range of economic resources, all of which can be achieved by establishing communications facilities, are among the most important and fundamental factors in ensuring various aspects of economic development.

The rate of economic development has a direct relationship with the extent of communications potential. In most developing countries the lack or inadequacy of means of communications creates major obstacles to increasing the national product and raising living standards. On the other hand, in developed countries, where the per capita income is high, adequate communications facilities exist which in turn accelerate the rate of social and economic growth. In terms of communications facilities the huge gap between the developed and developing countries is shown in Table 16.

In 1345 the equivalent figures for Iran were as follows: density of population per kilometre of all-weather road, 851; length of road per 100 square kilometres of land area, 1.9 kilometres (excluding the surface area of the salt desert, 2.65 kilometres). The figures for Turkey in 1344 were respectively 527 persons per kilometre of road and 7.56 kilometres per 100 square kilometres of land area.

In the preparation of social and economic plans, it can be said that ensuring communications facilities is one of the main conditions of success for the execution of such plans. In the countries of the Middle East on average 25 per cent of total development funds, and in most countries where development plans are prepared more than 20 per cent of total development funds, are allocated to the communications sector.

PERFORMANCE OF THE COMMUNICATIONS SECTOR IN THE THIRD PLAN

11 - During the Third Plan period, special efforts have been made to construct asphalted and gravel roads, develop the railway network, establish and equip airports and ports in order to continue projects which had been started to establish and expand the infrastructure of the economy. Since technical and specialized manpower, as well as capital, plays an important part in the creation of communications facilities, efforts have been made to mobilize and train the country's existing technical personnel by encouraging and supporting Iranian contractors and consulting engineers, in the execution of

TABLE 16 — LENGTH OF CLASSIFIED ROADS IN RELATION TO POPULATION AND SURFACE AREA OF SELECTED COUNTRIES IN 1340

	United Kingdom	France	Martinique	United States	Belgium	Morocco	Uganda	Nigeria	Ivory Coast	Guinea	Borneo
Density of population per square kilometre	219	79	240	22	275	23	23	35	8	12	5
Population per kilometre of road	164	70	152	25	770	184	313	560	150	330	337
Length of road per 100 square kilometres (kilometres)	133.3	111	80	83.3	35.9	12.6	71.4	6.25	5.26	3.12	1.5

new investments. During the course of the Third Plan therefore, the preparation, implementation and supervision of most projects concerning communications facilities have gradually been entrusted to Iranian consulting engineers and contractors.

The general objective of the Third Plan in the communications sector, in addition to establishing new facilities, has been to improve maintenance services and exploit existing facilities.

12 - The performance of each part of the communications sector during the Third Plan period may be summarized as follows:

a. Major roads

In connection with major roads, the objective of the Third Plan was to complete unfinished Second Plan projects, construct new asphalted roads and defray a portion of the cost of providing road maintenance and improved utilization of such roads.

During the Third Plan period, 28 per cent of the construction works of Second Plan roads which had been transferred to the Third Plan were completed, and 1,250 kilometres of these roads were asphalted. As for new roads, 20 asphalted roads totalling 2,459 kilometres have been built, and 157 kilometres of gravel roads have been asphalted during the Third Plan period (Tables 17-19).

As regards improvements in the maintenance of roads and existing technical buildings it must unfortunately be admitted that no success has been achieved during the Plan period, since such activities were not carried out according to a specific schedule. Improvements in road utilization could have been achieved by carefully checking truck weights, setting up road signs and safety installations where necessary so as to prevent accidents and raise the actual capacity of roads, and carefully examining traffic statistics. But here, too, no adequate steps were taken during the Third Plan period.

TABLE 17 — COMPLETION OF ROAD CONSTRUCTION PROJECTS TRANSFERRED FROM THE SECOND PLAN TO THE THIRD PLAN

	Road	Length of road (Kilometres)	Percentage of work executed in Third Plan	Length of road asphalted in Third Plan (Kilometres)
1.	Western roads			
	Hamadan-Khosrovi	371	11	62
	Shahabad-Malavi	158	37	115
	Kermanshah-Saghez	306	42	306
	Bijar-Divan Darreh (gravel)	55	7	—
	Total (1)	890	28	—
2.	Rudhen-Amol-Babol	174	27	148
3.	Khorramshahr-Bandar Pahlavi	1,181	28	610
4.	Manjil-Rudbar	9	100	9
5.	Sar Bandar-Ahwaz	157	25	—
	Total (1 — 5)	2,411	28	1,250

ROADS AT THE END OF 3rd PLAN

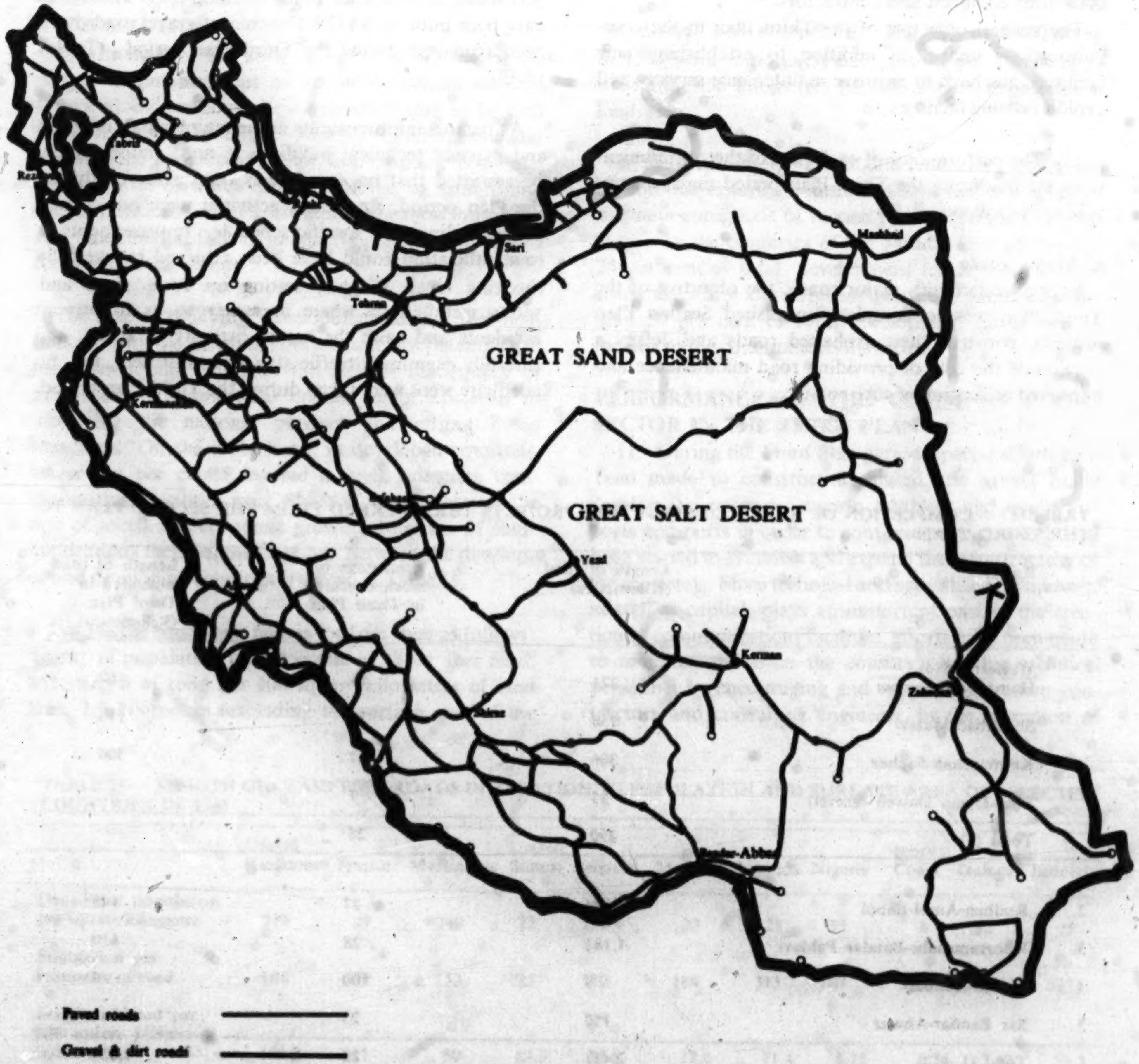

Tabriz
Rezaieh
Sari
Mashhad
Tehran
Sanandaj
Hamadan
Kermanshah
GREAT SAND DESERT
GREAT SALT DESERT
Isfahan
Yazd
Ahwaz
Kerman
Zahedan
Shiraz
Bandar-Abbas
Paved roads
Gravel & dirt roads

TABLE 18— ASPHALTED ROADS ON WHICH CONSTRUCTION STARTED DURING THE THIRD PLAN PERIOD

	Road Project	Length completed (Kilometres)	Remarks
1.	Takestan-Tabriz-Bazargan	488	This road, the total length of which is 688 kilometres, will be completed in the first year of the Fourth Plan period.
2.	Kerman-Sirjan-Bandar Abbas-Rudan	597	
3.	Sari-Shahpasand	205	
4.	Ghom-Arak-Borujerd	232	
5.	Shiraz-Bushehr	179	Total distance Shiraz-Bushehr is 302 kilometres.
6.	Khorramshahr-Abadan-Bandar Shahpur	104	
7.	Rasht-Fuman	25	
8.	Ghuchan-Mashhad-Afghanistan border	247	Total distance Ghuchan-Mashhad-Afghanistan border is 395 kilometres.
9.	Esfahan-Nain	133	
10.	Tehran-Karaj Freeway	41	
11.	Delijan-Mahallat	27	
12.	Sari-Farahabad	28	
13.	Mahmudabad-Amol	19	
14.	Zit-Goharbaran	20	
15.	Mashhad airport-Radar station	14	
16.	Golpayegan-Khonsar	30	
17.	Dowlatabad-Esfahan	12	
18.	Bahar-Hamadan	4	
19.	Shahrokhi-Subachi	44	
20.	Parandak	10	
	Total	2,459	

b. Feeder roads

In this connection, the Third Plan objective has been to provide for a study of the country's requirements for economic roads, the preparation of projects for 10,000 kilometres of gravel roads and the construction of 7,000 kilometres of such roads in various regions. During the Third Plan period, 14,667 kilometres of feeder roads were surveyed, on 8,728 kilometres of which construction has already begun. Of this latter figure the construction of 5,445 kilometres has been completed, and

TABLE 19—LENGTH OF VARIOUS ROADS AT THE BEGINNING AND END OF THE THIRD PLAN (KILOMETRES)

	Description	Asphalted roads (1)	Gravel roads (2)	Dirt roads built by the Ministry of Roads (3)	Feeder roads built by the Ministry of Roads (4)	Total
1.	Length of roads as of Farvardin 1st 1346	6,647.5	20,197.5	4,961	663	32,469
2.	Length of roads ready for use on Farvardin 1st, 1347	8,126	22,329	4,602	663	35,720
3.	Length of roads in Azar 1341	4,260	13,257	9,607	5,690	32,814
4.	Third Plan achievement (2 — 3)	3,866	9,072	—	—	—

Column 1 - During the Third Plan 3,866 kilometres of asphalted roads have been constructed, of which 2,459 kilometres are new roads, 1,250 kilometres are roads the construction of which was begun in the Second Plan period, and 157 kilometres were previously gravel roads.

Column 2 - Figures in this column include first and second grade gravel roads as classified by the Department-General of Road Maintenance of the Ministry of Roads. Gravel roads built in the Third Plan period as part of the feeder road project are also included. Furthermore, 3,283 kilometres of such roads are also under construction and will be completed in the first two years of the Fourth Plan. (The Ministry of Roads second grade gravel roads have, in some reports, been included as dirt roads).

Columns 3 & 4 - Figures in these columns represent roads listed by the Department-General of Road Maintenance of the Ministry of Roads.

N.B. - Since Ministry of Roads dirt roads indicated under columns (3) and (4) are not all-weather roads it may be concluded that as of Farvardin Ist, 1347, the total length of all-weather roads in Iran will amount to 30,455 kilometres.

work on the remaining 3,283 kilometres will be completed during the first two years of the Fourth Plan. Furthermore, projects relating to the rest of the roads already surveyed (5,939 kilometres) will be ready for implementation at the start of the Fourth Plan. Table 20 shows the length of feeder roads which have been put to tender and the length of roads surveyed in each province.

e. Railways

The Third Plan objective for the railway system was to construct the 233-kilometre Sharafkhaneh-Ghotur line, to improve and reconstruct existing railroads, to establish installations and provide necessary equipment, to improve utilization and to maintain existing facilities. Meanwhile, in order to expedite the construction of the steel mill, for which Esfahan has been selected as the site, the construction of a Bad-Esfahan-Bafgh-Zarand line including subsidiary lines totalling 1,550 kilometres was also included in the Third Plan objectives. During the Third Plan period, 90 per cent of the foundations and 50 per cent of track-laying on the Tabriz-Sharafkhaneh-Ghotur line have been completed. Furthermore, the construction of the Mashhad, Tabriz and Gorgan railway stations and related installations, the construction of jetties at the ports of Rahmanlu and Golmankhaneh, and a ship repair dock at Sharafkhaneh, the

TABLE 20 — FEEDER ROADS SURVEYED, BUILT OR UNDER CONSTRUCTION IN VARIOUS REGIONS (KILOMETRES)

Region	Total length feeder roads built or under construction	Length already built or to be built by start of Fourth Plan	Feeder road surveys projects prepared
1. Central Province and Semnan Governorate-General	743	412	896
2. Province of Gilan and west part of Mazandaran	838	247	112
3. East part of Mazandaran and Gorgan	615	234	142
4. Province of West Azarbaijan	461	224	—
5. Province of East Azarbaijan	530	225	290
6. Province of Kermanshahan, Hamadan Governorate-General and Ilam	998	934	30
7. Province of Khuzestan and Kohkiluyeh and Boeir Ahmadi Governorate-General	666	493	764
8. Province of Fars and Persian Gulf Governorate-General	773	696	751
9. Province of Kerman and Oman Sea Islands and Ports Governorate-General	894	446	916
10. Province of Khorasan	496	435	622
11. Province of Esfahan and Bakhtiari and Chaharmahal Governorate-General	368	257	425
12. Lorestan Governorate-General	133	133	327
13. Province of Sistan and Baluchestan	349	40	354
14. Province of Kordestan and Zanjan Governorate-General	864	669	310
Total	8,728	5,445	5,939

N.B. 1. Column 1 also includes feeder roads built on 50-50 basis and by executive agencies out of funds relating to Feeder Roads Project.

2. Feeder roads completed out of 50-50 project funds amount to 110 kilometres.

3 50-50 feeder roads completed from Third Plan Feeder Road Project funds amount to 207 kilometres.

4. Third Plan feeder road built by executive agencies amounts to 815 kilometres.

5. Construction of 3,283 kilometres of feeder roads included in column 1 and of 63 bridges forming part of these roads, the total span-length of which amounts to 4,089 metres, will be completed in the Fourth Plan period.

improvement of a branch line to Rahmanlu, and the replacement of the Ahwaz-Bandar Shahpur railway track were completed. In addition, 20 per cent of the foundation works of the Bad-Esfahan, Meybod-Yazd, Bafgh-Zarand line has been completed and the remaining construction and track-laying will be carried out during the Fourth Plan period. In addition, action has been taken to provide for necessary supplies and equipment for the railway system within the limits of the Plan forecasts. However no success has been achieved in improving the utilization and maintenance of available facilities. In fact, to date, the balance-sheets of the Iranian State Railways for the years 1342 to 1346 have not yet been prepared for careful examination.

d. Ports

The Third Plan objective was to increase the capacity of Iranian ports by constructing Bandar Abbas, the largest southern port, expanding and completing the ports of Bushehr, Bandar Shahpur and Bandar Pahlavi, surveying small ports, improving service and increasing the utilization of existing installations. The construction of Bandar Abbas with a capacity of 1.5 million tons, of which 900 thousand has been allocated to commercial goods and 600 thousand to the export of ores, has been completed, and this port is now capable of handling ocean-going freighters.

The reconstruction of Bushehr and the expansion and equipment of Bandar Shahpur for the export of ores have been completed, and 70 per cent of the construction work on the ship repair dock at Bandar Shahpur has also been completed.

At Bandar Pahlavi, the annual capacity of the port has been raised to 250,000 tons, through the extension of the sea wall, and related construction works and installations have been completed. Surveys are in progress for a ship repair dock at Bandar Abbas and the establishment of three small ports at Deir, Jask and Lengeh.

Table 21 shows the capacities of Iranian ports at the beginning and end of the Third Plan period. It is worth mentioning that no success has been achieved during the Plan period in improving the operation and maintenance of existing facilities at Iranian ports, and so far only surveys have been started in these fields.

e. Airports

The objective of the Third Plan has been to construct new airports in Kerman, Yazd, Tabriz, Rezaiyeh, Rasht, Bandar Abbas, Zahedan, Kermanshah, Hamadan, Sanandaj and Ramsar; to equip the airports of Tehran, Abadan, Shiraz, Esfahan, Bushehr, Mashhad and Ahwaz; and to improve the maintenance and operation of existing airports. During the Third Plan, in addition to projects for the completion of construction work on Second Plan airports, on average 75 per cent of construction work on new airports has also been completed.

TABLE 21 — CAPACITIES OF IRANIAN PORTS AT BEGINNING AND END OF THE THIRD PLAN PERIOD (THOUSANDS OF TONS PER YEAR)

	Name of Port	Capacity at the beginning of Third Plan	Capacity at the end of Third Plan	Notes
1.	Bandar Abbas	75	1,500	including 600,000 tons of minerals
2.	Bushehr	70	200	
3.	Bandar Pahlavi	150	250	
4.	Khorramshahr	970	970	
5.	Bandar Shahpur	600	1,000	including 400,000 tons of minerals
6.	Nowshahr	35	35	
	Total	1,900	3,955	

But no tangible improvement has been achieved with regard to the maintenance of airports during the Second Plan period.

f. Meteorology

During the Second Plan, all activities relating to the gathering and distribution of meteorological data were centralized in the Department-General of Meteorology in order to ensure flight safety, to contribute to agricultural and irrigation activities, and to survey meteorological conditions in different regions. Various projects have also been carried out for the installation of meteorological networks and to supply the necessary technical equipment. The objective of the Third Plan in the field of meteorology has been to establish new stations and complete existing installations in order to meet the country's requirements in this connection. In order to achieve this objective, measures has been taken to develop the network and to increase the number of meteorological stations, the results of which are shown in Table 22. Action has also been taken to train technical personnel, and 60 observers have received training. Construction work has also started on a headquarters building for the Department-General of Meteorology, which will be completed in the Fourth Plan period.

TABLE 22 — NUMBER OF METEOROLOGICAL STATIONS AT BEGINNING AND END OF THIRD PLAN

Type of Station	Beginning of Third Plan	End of Third Plan	Increase
1. Rain-gauging	76	450	374
2. Climatological	142	280	138
3. Synoptic	40	50	10
4. Radio sonde	2	6	4
5. Wind-finding radar	2	6	4

g. Cartography

During the Second Plan period, the National Cartographic Centre was established out of development funds to prepare maps required by public and private agencies.

TABLE 23 — OPERATIONS OF THE NATIONAL CARTOGRAPHIC CENTRE DURING THIRD PLAN

	Description	Aerial photography	Cartography
1.	Towns	7,917 square kilometres of 393 towns	293 towns and 800 square kilometres around Tehran Topography of 10 towns 1,450 kilometres of sewerage networks in Mashhad, Shiraz, Sanandaj and Khorramabad 128 kilometres of flood control systems in 23 towns
2.	Road and rail routes	6,422 kilometres	2050 kilometres of roads and railroads
3.	Power transmission lines	1,223 kilometres	2,295 kilometres of which more than 1,500 kilometres have been delivered
4.	Mines	5,569 square kilometres	3,450 square kilometres
5.	Irrigation regions	44,651 square kilometres	16,120 square kilometres
6.	Cadastral maps	866,818 square kilometres	2,260 square kilometres in Sistan and Shabankareh
7.	Miscellaneous	11,000 square kilometres	1,200 kilometres of profiles and 150 square kilometres of mapping Photomaps 1,000 square kilometres

During the Third Plan period, appropriations were made to provide for adequate supplies and materials and to strengthen the technical staff of the Centre, which is managed on a commercial basis.

The services which have so far been performed by the National Cartographic Centre in aerial photography and in the preparation of maps of different scales required by both public and private agencies are listed in Table 23. In addition, 214 engineers, technicians and draughtsmen have been trained and have completed the special courses organized by the Centre.

h. Technical and Soil Mechanics Laboratory

Toward the end of the Second Plan period, the Technical and Soil Mechanics Laboratory was established in order to undertake tests required for various construction projects which had previously been carried out by foreign consultants. This laboratory, which is now managed on a commercial basis, has carried out tests on soil mechanics, and on materials required for the preparation of projects, road building, and other types of construction throughout the country. Technical and laboratory supervision of all construction works have been carried out under the supervision of this laboratory. The laboratory has also played a major role in providing and training technical staff for such operations during the Third Plan. At present, the laboratory is able to conduct the necessary tests for the proper execution of national development plans. However, it is considered essential that the laboratory should be adequately strengthened in terms of manpower and equipment during the Fourth Plan period.

PROBLEMS OF THE SECTOR DURING THE THIRD PLAN

13 - The implementation of the Third Plan Communications Programme was faced with the following general problems:

a. problems related to the preparation of projects;

b. problems related to the execution of projects;

c. problems related to the maintenance and utilization of existing and newly-established facilities.

a. Problems relating to the preparation of projects were of two types, the first of which was due to the lack of adequate experience on the part of Iranian consulting engineers, and the second was caused by the limited time allowed for the preparation of projects, and the urgency of starting construction works. Thanks to the experience acquired by Iranian consulting engineers during the Plan period, it is expected that through more careful screening of their surveys, problems of the former type will be reduced in the Fourth Plan period. Meanwhile, in order to overcome problems of the latter type, Plan Organization has, during the Third Plan period, prepared an adequate number of projects to be started at the beginning of the Fourth Plan.

b. As for the implementation of feeder road projects, the lack of adequate experience on the part of the consulting engineers has somewhat delayed the works and the relevant expenditure has exceeded the estimated ceilings. In this connection, steps have been taken to overcome such difficulties. With regard to major roads, the basic problem has been the inadequacy of anticipated appropriations to serve the initial objective. A part of this shortage of funds has been due to the large volume of operations left over from the Second Plan in relation to allocations made in the Third Plan. Another cause has been the fact that actual expenditure at the execution stage has exceeded initial forecasts. In order to eliminate these two problems in the Fourth Plan, expenditure required to finish Third Plan operations has as far as possible been calculated with the utmost care and included in the Fourth Plan appropriations. It has, however, now been decided that survey and project preparation should from the very beginning be carried out by a proper allocation of costs, which will be estimated on the basis of past experience and reliable criteria for each individual project; and a method will be adopted for the preparation of projects, which as far as possible will allow for the results of modern technical and economic studies of such projects.

c. Difficulties relating to the operation of communication facilities are mainly due to the inadequacy of existing laws and organizations governing the maintenance and operation of old and new facilities.

14 - During the Third Plan period, special emphasis has been placed on the development and extension of a mechanized maintenance system for all national roads by purchasing the necessary equipment. Unfortunately, however, no special plan has been developed for the maintenance of roads and for the maximum use of this equipment. Meanwhile, large-scale road-building will gradually create heavier responsibilities for the Ministry of Roads as far as maintenance is concerned. To discharge such responsibilities, the preparation of an effective plan for road maintenance is required in order to raise efficiency and make better use of technical potential and available equipment and funds. Little success has so far been achieved in checking the loads and operating conditions. Most roads in use are deficient in traffic signs and safety installations, and as a result the number of accidents has increased while the useful capacity of the roads has decreased.

15 - RAILWAYS

From the end of the Second Plan period, it has been the constant endeavour of the Government to take fundamental measures to improve the utilization of existing facilities and equipment, so as to enable the Iranian State Railways to fulfil its role in the growth of the national economy. In spite of studies regarding improvements to the organization and administration of the Iranian State Railways, no practical measures have yet been taken in this respect and no success has been achieved in tackling administrative problems, the maintenance and better exploitation of the track and the installations and the provision of spare parts and equipment out of the revenues of the Iranian State Railways. It may be concluded from surveys made that the ratio of utilization of the existing traction equipment is extremely low in comparison with other countries, and that the maintenance of fixed installations is not properly carried out.

16 - PORTS

Organizational weaknesses, the shortage of technical manpower resulting from the application of the Civil Service Code to the Ports and Navigation Organization, and overlapping functions of various agencies in the operation of ports have resulted in the creation of a situation in which Iranian ports have become a real bottleneck in the country's communications programme during the Third Plan period. At present, Iranian ports are not fully utilized, and the maintenance of existing installations has not yet been carried out according to a clearly defined programme. In general, organizational deficiencies in the rail, ports and customs authorities have combined to result in the improper exploitation of every single Iranian port. During the Third Plan, studies have been conducted in connection with the reorganization of ports and the separation of the functions of various agencies so as to improve the operation of ports, but no conclusive or practical measures have yet been taken. The new regulations pertaining to the Ports and Navigation Organization, which have recently been approved, are not by any means sufficient to attain the above objectives. Determining and providing the required additional capacity to meet the future needs of the country will not be possible until existing facilities are fully utilized. Surveys and studies have proved that if the laws and regulations governing the organization and functions of the agencies responsible are revised, some of the operational functions of ports which are not contradictory with Government jurisdiction may be assigned to the private sector, so that the efficiency of operations may reach an acceptable level.

17 - AIRPORTS

The inadequacy of specialist technical staff in the organization of the Department-General of Civil Aviation and the impossibility of engaging such staff under present civil service regulations, and the application of public accounting laws in the case of urgently required repairs and spare parts for flight control communications systems, have resulted in the improper operation and maintenance of airports. During the Third Plan period there has been no programme for the maintenance of runways, airport buildings and equipment and owing to the present civil service laws, the provision of technical manpower required to prepare and execute such plans has not been possible.

18 - In view of the foregoing, it may be concluded that none of the existing and newly established communications facilities (roads, railways, airports and ports) are being properly maintained and operated. The commonest reasons for all the problems involved are

the shortage of technical staff, the inadequacy of the organizations involved and the present employment and financial regulations governing such agencies.

The role that the operation and maintenance of equipment and installations should have played in the growth of the national economy has thus been limited, and the present laws relating to invitations to tender for urgently required items, such as spare parts for certain machinery and equipment, have led to interruptions in the operation of existing plant. An overall revision must therefore be made in the organization of Government agencies whose function it is to provide everyday economic and social services to the public. Furthermore, not only should special employment and finance laws be enacted for these institutions but as far as possible the private sector should be allowed to take over these functions. As regards the railway system, fundamental studies should be made for a complete overhaul of its organization, operating and maintenance procedures.

GENERAL OBJECTIVES OF THE FOURTH PLAN REGARDING COMMUNICATIONS

19 - In view of the present condition of communications facilities, production resources and distribution of population, the trade in goods inside and outside the country, the main objectives of the communications sector in the Fourth Plan will be to meet the present and future demands of the economy for internal communications and transit links with neighbouring countries at minimum transport costs so that the development of industry, agriculture, trade, mining and the extension of social services is not hampered by inadequate communications facilities, and the sector is able to help other productive sectors reach their targets: communications for its own sake is not the ultimate goal and naturally its development should conform to the transport and social needs of the economy. Every component of the communications sector has therefore been determined in co-ordination with all other components. Considering the appraisal made of the Third Plan, the priorities of the Fourth Plan communications programme are divided into two separate groups:

a. measures which will lead to the maximum utilization of existing facilities;

b. new communications facilities in keeping with socio-economic plans.

TABLE 24 — DISTRIBUTION OF CREDITS IN TRANSPORT AND COMMUNICATIONS CHAPTER OF FOURTH PLAN BY INDIVIDUAL SECTIONS
(MILLIONS OF RIALS)

	Section	Allocation
1.	Major Roads	35,450
2.	Feeder Roads (Gravel)	15,550
3.	Railways	16,000
4.	Ports	6,800
5.	Airports	5,400
6.	Meteorology	600
7.	Cartography	100
8.	Technical and Soil Mechanics Laboratory	100
	Total	80,000

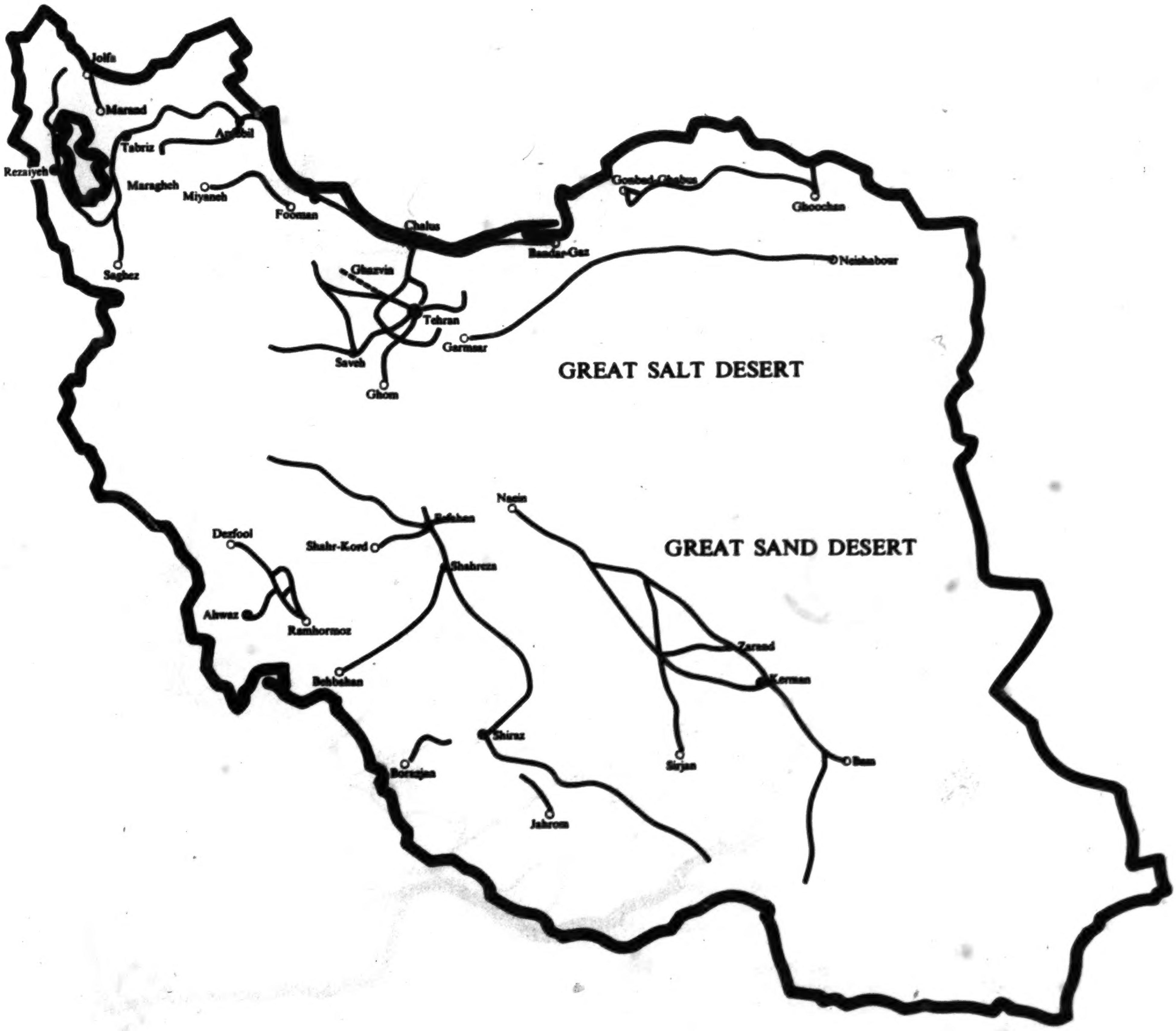
SPECIFIC OBJECTIVES AND PROGRAMMES

20 - Roads. In the road-building programme the national requirements for new roads have been calculated with due regard to the existing road network and various criteria such as distribution of population, regional topography, volume of goods traffic, volume of other traffic and the development of agricultural, industrial and mining activities. According to a preliminary survey, at present the national need for major and feeder roads amounts to approximately 100,000 kilometres, whereas the existing network of national all-weather roads will amount to only about 30,455 kilometres by the end of the Third Plan period, of which 22,000 kilometres are gravel and the remainder asphalted.

a. Quantitative objectives

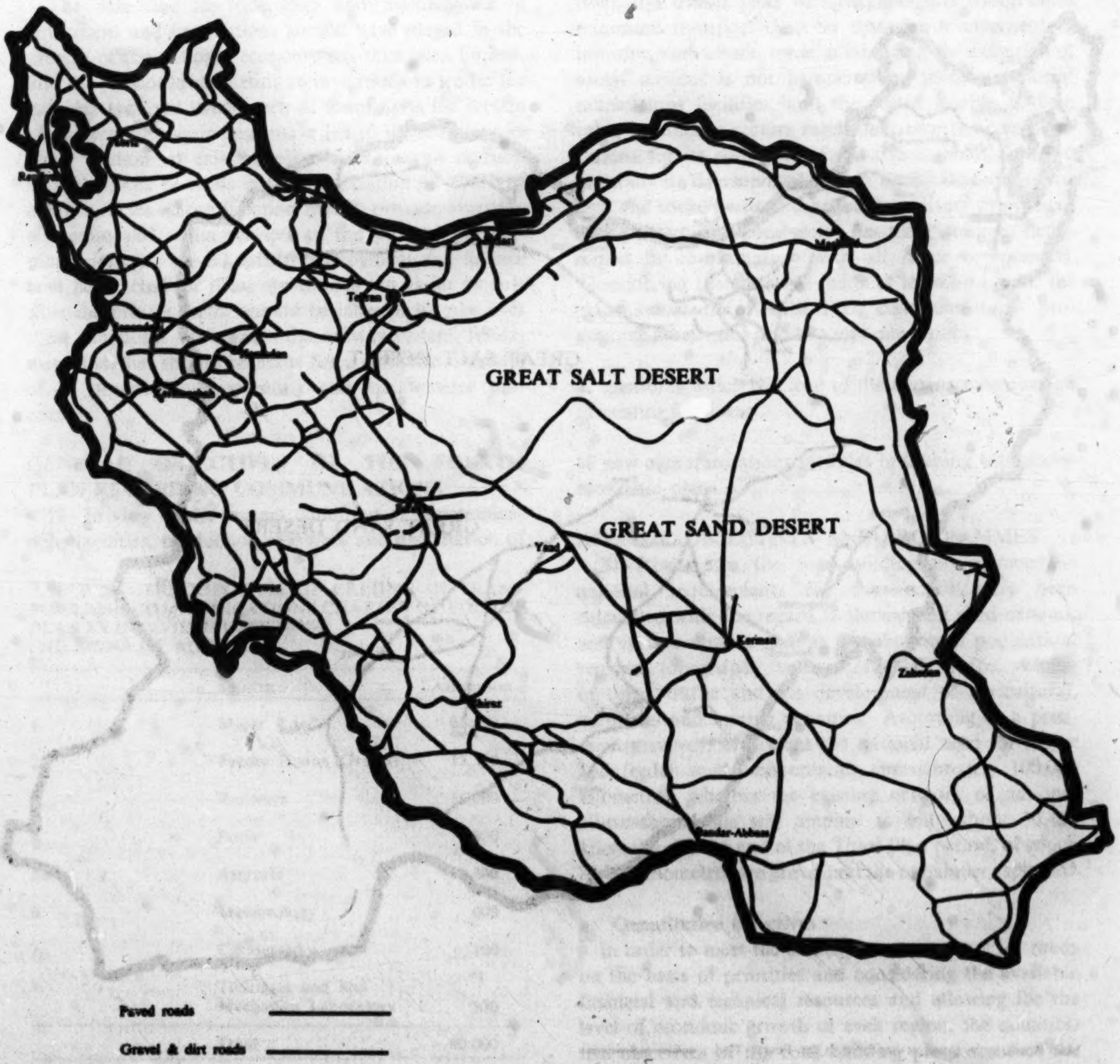
In order to meet the country's requirements for roads on the basis of priorities and considering the available financial and technical resources and allowing for the level of economic growth of each region, the quantitative objectives of the road-building programme of the

MAIN ROADS


Jolfa
Marand
Ardebil
Tabriz
Rezaiyeh
Maragheh
Miyaneh
Fooman
Saghez
Chalus
Bandar-Gaz
Gonbad-Ghabus
Ghoochan
Neishabour
Ghazvin
Tehran
Garmsar
Saveh
Ghom
GREAT SALT DESERT
Naein
Esfahan
Shahr-Kord
Shahreza
GREAT SAND DESERT
Dezfool
Ahwaz
Ramhormoz
Behbahan
Zarand
Kerman
Shiraz
Borazjan
Sirjan
Bam
Jahrom

Main Roads to be paved or improved in the Fourth Plan ————

ROADS AT THE END OF FOURTH PLAN


Tabriz
Tehran
Mashhad
Hamadan
Kermanshah
GREAT SALT DESERT
GREAT SAND DESERT
Yazd
Ahwaz
Kerman
Zahedan
Shiraz
Bandar-Abbas
Paved roads
Gravel & dirt roads

Fourth Plan are to complete unfinished Third Plan projects, construct 4,700 kilometres of new asphalted roads, repair and asphalt 4,500 kilometres of existing roads, and build 12,500 kilometres of provincial, regional and rural roads (See Tables 25-29).

b. Qualitative objectives

The preparation of projects and research work into the economic and technical feasibility of road maintenance and construction, the establishment of safety installations along existing roads to raise the rate of utilization, a basic revision of methods and procedures of maintenance and careful checking of the mechanical and transport conditions of vehicles are the qualitative objectives of this programme. The Fourth Plan road-building programme should be based on the principle that until a minimum network of roads is constructed, the construction of roads with engineering and design specifications higher than the requirements of the next 10 years should be avoided.

TABLE 25 — DISTRIBUTION OF CREDITS AND VOLUME OF WORK ON MAJOR ROADS DURING FOURTH PLAN (MILLIONS OF RIALS)

Description	Kilometres	Estimated cost
1. Completion of roads under construction		5,975
2. New roads	4,700	22,455
3. Repair and asphalting of existing roads	2,785	3,895
4. Resurfacing (road maintenance)	1,715	665
5. Road signs, line-marking and safety installations for existing roads		500
6. Maintenance equipment		600
7. Purchase and erection of metal bridges		300
8. Weighing stations		150
9. Incidentals		500
10. Surveys		350
11. Research		50
12. Traffic statistics		10
Total	9,200	35,450

TABLE 26 — CREDITS FOR COMPLETION OF ROADS UNDER CONSTRUCTION (MILLIONS OF RIALS)

	Description	Estimated cost
1.	Ghom-Arak-Borujerd	200
2.	Sari-Shahpasand	55
3.	Rasht-Fuman	30
4.	Local repairs to Gorgan-Shahpasand road	68
5.	Repairs to asphalt of Rudhen-Amol-Babol road	350
6.	Completion and asphalting of Kerman-Bandar Abbas-Rudan road	1,500
7.	Completion and asphalting of Takestan-Bazargan road and Achichai bridge	1,800
8.	Completion of Shiraz-Bushehr and Khorramshahr-Bandar Shahpur roads (Lots under construction)	300
9.	Sefid Rud dam diversion tunnel and road	160
10.	Tureh-Malayer	200
11.	Babolsar embankment	50
12.	Karun and Dezful bridges	390
13.	Balu Mahalleh-Farahabad and Zit-Goharbaran roads	120
14.	Shahabad-Malavi	300
15.	Survey of Third Plan roads	152
16.	Completion of Ghuchan-Mashhad-Afghanistan frontier road	300
	Total	5,975

TABLE 27 — FOURTH PLAN CREDITS FOR NEW ROAD CONSTRUCTION (MILLIONS OF RIALS)

	Description	Kilometres	Estimated cost	Section Total
	a — New roads under construction			2,150
1.	Shiraz-Bushehr (4 lots)	123	1,250	
2.	Ghuchan-Mashhad-Afghanistan border (2 lots)	148	900	
	b — Construction of new routes			20,305
3.	Ghuchan-Shahpasand-Gonbad-Minudasht	389	1,630	
4.	Rudan-Sabzevaran	171	770	
5.	Sabzevaran-Darzin	100	450	
6.	Nain-Yazd-Kerman	489	1,660	
7.	Saghez-Miandoab	95	300	
8.	Miandoab-Rezaiyeh	164	280	
9.	Rezaiyeh-Khoy-Ogloo	120	600	
10.	Semirom-Behbahan	320	2,560	
11.	Shiraz-Fassa-Darab-Kaham	414	1,000	
12.	Tehran-Ghom	140	420	
13.	Marand-Jolfa	64	320	
14.	Ghuchan-Bajgiran	68	340	
15.	Esfahan approach roads	50	500	
16.	Tehran approach roads and extension of Freeway to Pahlavi Avenue	20	400	
17.	Approach roads to Rasht	15	75	
18.	Ramsar-Bander Gaz (coastal roads Babolsar to Bandar Gaz)	290	1,605	
19.	Mianeh-Heroabad-Fuman	202	1,550	
20.	Saveh-Takestan-Ghazvin-Rasht	165	560	
21.	Yazd-Bafgh-Zarand-Kerman	320	1,000	
22.	Sirjan-Shahrebabak-Railway-Bafgh	220	800	
23.	Tehran-Shemshak-Gajereh-Gachsar and new tunnel	60	600	
24.	Widening and improving Karaj-Chalus road	160	750*	
25.	Tehran-Rudhen-Damavand-Emamzadeh Hashem	80	760	
26.	Tehran ring road	100	350	
27.	Beginning of construction of Saveh-Esfahan-Shiraz	175	500*	
28.	Reinforcement of northern bridges	—	400	
29.	Zayandeh Rud bridge	—	125	
30.	Nahrab bridge (included in feeder road projects	—	—	
	c — Repair of roads			3,100
31.	Asphalting of Astara-Pahlavi road	152	350	
32.	Repair and asphalting of Rasht-Ramsar road	119	400	
33.	Asphalting of Kerman-Bam road	207	300	
34.	Asphalting of Garmsar-Shahrud-Neyshabour road (Tehran-Mashhad)	700	700	
35.	Reinforcement of existing Karaj-Ghazvin road and asphalting of Karaj-Boin-Takestan feeder roads	218	350	
36.	Tabriz-Ahar-Ardabil-Astara-Sarab-Bostanabad	470	500	
37.	Asphalting of Khuzestan roads	250	300	
38.	Local repairs to Bam-Mirjaveh road	50	200*	
	d — Activities proposed by the Ministry of Roads to be carried out directly by the Ministry purchasing its own equipment			1,460

Continued on next page

(Table 27 cont.)

	Description	Kilometres	Estimated cost	Section Total
39.	Tehran-Saveh-Hamadan	275	450	
40.	Damaneh-Dorud	189	190	
41.	Miandoab-Tabriz	157	155	
42.	Resurfacing of Pahlavi-Khorramshahr road	1,185	465	
43.	Resurfacing of Hamadan-Kermanshah-Khosravi road	371	140	
44.	Resurfacing of Ahwaz-Sar Bandar road	157	60	
	e — Equipment and contribution to road maintenance			2,050
45.	Traffic signs and lining		500	
46.	Road maintenance equipment		600	
47.	Procurement and erection of steel bridges		300	
48.	Construction of weighing stations		150	
49.	Miscellaneous operations		500	
	f — Surveys and Research			410
50.	Road surveys		350	
51.	Preparation of traffic statistics		10	
52.	Research		50	
	Total cost of new construction activity			29,475
	Total cost of completing road building operations in progress			5,975
	Grand total			35.450

* To be completed in Fifth Plan.

TABLE 28 — FOURTH PLAN CREDITS FOR FEEDER ROADS (MILLIONS OF RIALS)

Description	Kilometres	Total credits
1. Completion of roads under construction		3,275
2. Rural roads (dirt)	2,500	625
3. Regional roads	9,000	8,700
4. Provincial roads	1,000	1,300
Total	12,500	13,900
5. Supervision		500
6. Survey		600
7. Maintenance		500
8. Research		50
Grand total		15,550

TABLE 29— FOURTH PLAN FEEDER ROADS TARGETS BY REGION (KILOMETRES)

	Name of Region	Provincial roads	Regional roads	Rural roads	Total for each region
1.	Central Province and Semnan	100	1,000	200	1,300
2.	Gilan and west Mazandaran	—	600	150	750
3.	East Mazandaran and Gorgan	100	600	150	850
4.	East Azarbaijan	100	500	200	800
5.	West Azarbaijan	50	500	200	750
6.	Kermanshah-Ilam-Hamadan	—	1,050	200	1,250
7.	Khuzestan-Kohkiloyeh	200	500	200	900
8.	Fars and Persian Gulf regions	100	650	250	1,000
9.	Kerman and coastal regions	100	700	200	1,000
10.	Khorasan	150	700	200	1,050
11.	Esfahan and Chahar Mahal Bakhtiari	100	750	200	1,050
12.	Lorestan	—	300	100	400
13.	Sistan-Baluchestan and Oman Sea regions	—	750	50	800
14.	Kordestan and Zanjan	—	400	200	600
	Total	1,000	9,000	2,500	12,500

21 - RAILWAYS

a. Quantitative objectives

The objectives of the railway programme are the establishment of 1,550 kilometres of new main and branch lines in order to meet the transport requirements of the steel mill, complete the Sharafkhaneh-Ghotoor line to link the Iranian railway system to the Turkish and European systems and reconstruct the Sufian-Jolfa line so as to improve the railway link with the USSR. The replacement of old track and procurement of traction equipment, wagons and other required equipment are also provided for in the programme.

b. Qualitative objectives

The qualitative objectives include a basic revision in the organizational, operational and maintenance procedures of the Iranian State Railways through the establishment of marketing and commercial services, a revision in the financial relations of the Iranian State Railways with the Government and Government agencies so that it is able to fulfil its basic role in the economic development of the country (Table 30).

22 - PORTS

a. Quantitative objectives

In view of the rate of economic growth, the increase in the volume of foreign trade, the establishment of new industries such as steel, petrochemicals and aluminium, and the increase in mining and export of ores, the required capacities of northern and southern ports for

PROJECTED NETWORK OF MAIN HIGHWAYS AND PROVINCIAL ROADS IN IRAN IN 1357

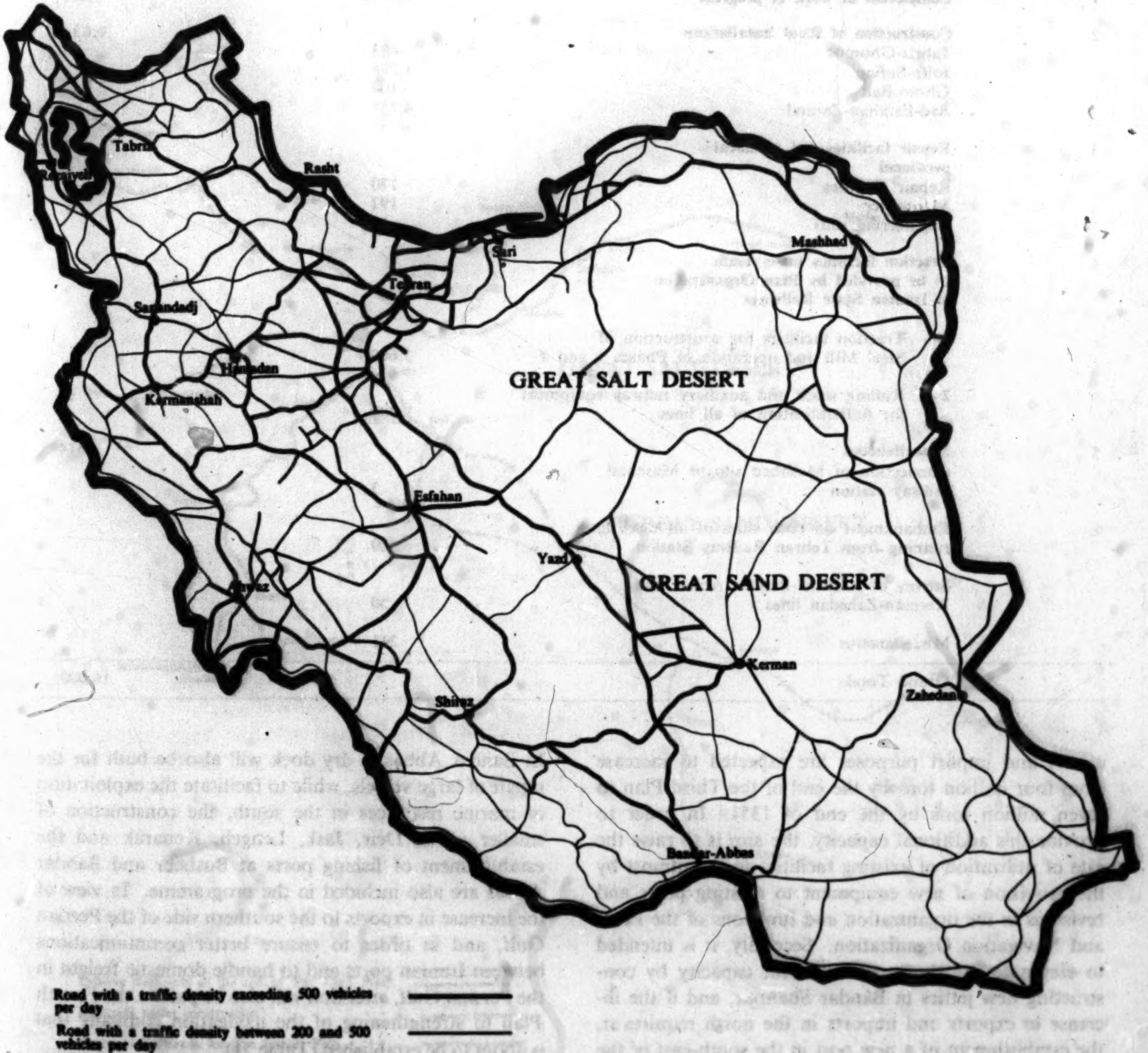
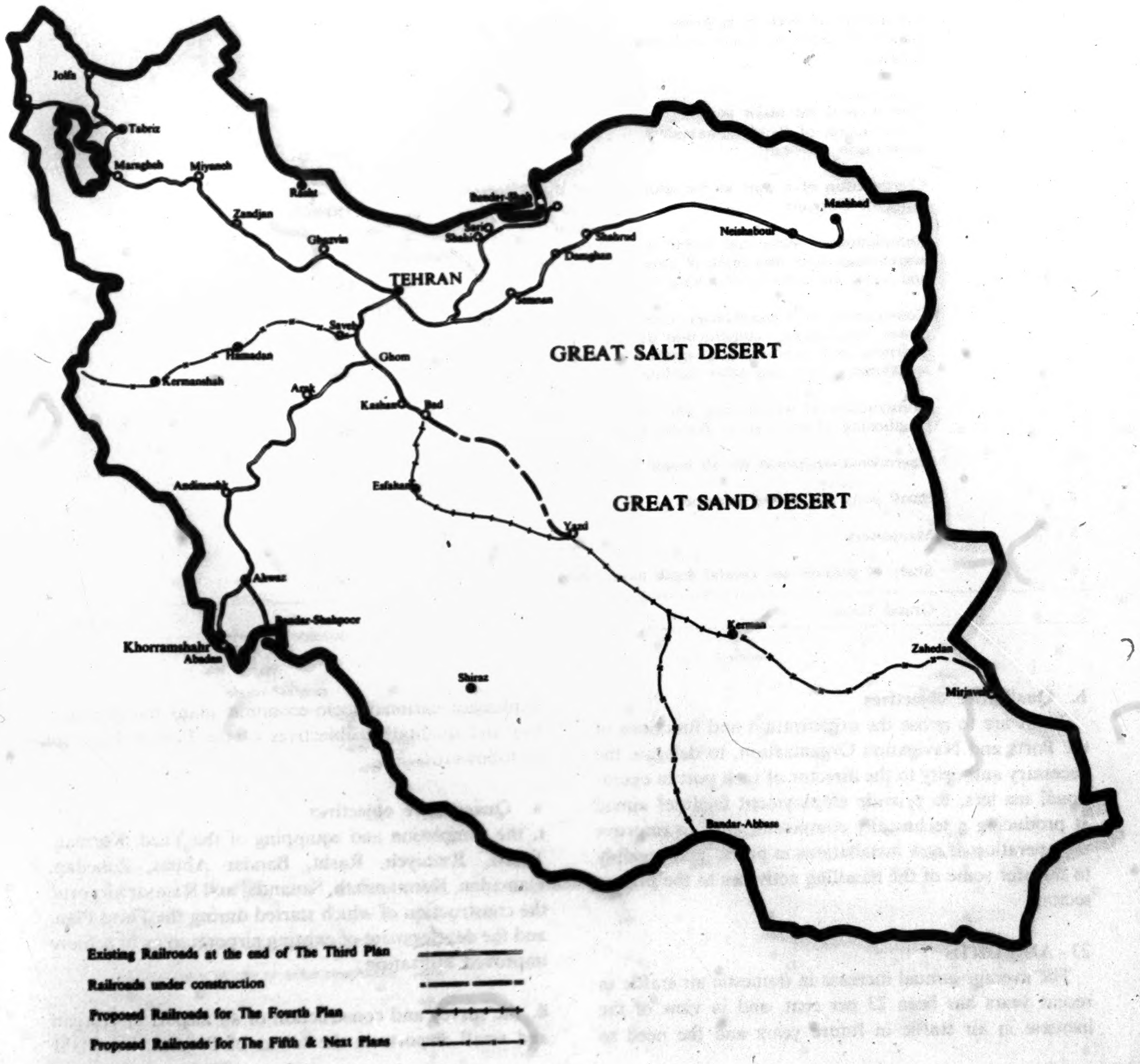

Tabriz
Rezaiyeh
Rasht
Sari
Mashhad
Tehran
Sanandadj
Hamadan
Kermanshah
GREAT SALT DESERT
Esfahan
Yazd
GREAT SAND DESERT
Ahvaz
Kerman
Shiraz
Zahedan
Bandar-Abbas
Road with a traffic density exceeding 500 vehicles per day
Road with a traffic density between 200 and 500 vehicles per day
Road with a traffic density less than 200 vehicles per day

TABLE 30 — FOURTH PLAN CREDITS FOR RAILWAYS
(MILLIONS OF RIALS)

	Description	Credits Allocated	Section Total
1	**Completion of work in progress**	1,000	1,000
2	**Construction of fixed installations**		6,634
	Tabriz-Ghotoor	483	
	Jolfa-Sufian	1,296	
	Ghom-Bad	104	
	Bad-Esfahan-Zarand	4,751	
3	**Repair facilities and technical personnel**		372
	Repair facilities	170	
	Manpower	192	
	Engineering staff	10	
4	**Traction facilities under loans to be provided by Plan Organization to Iranian State Railways**		7,680
	1 — Traction facilities for construction of Steel Mill and operation of Phases 1 and 2	5,680	
	2 — Rolling stock and auxiliary railway equipment for full utilization of all lines	2,000	
5	**Miscellaneous**		314
	Connection of Mashhad silo to Mashhad railway station	3	
	Embankment on both sides of all three lines running from Tehran Railway Station	20	
	Survey of Kerman-Bandar Abbas and Kerman-Zahedan lines	50	
	Miscellaneous	241	
	Grand Total		16,000

export and import purposes are expected to increase from four million tons by the end of the Third Plan to seven million tons by the end of 1351. In order to provide this additional capacity, the aim is to raise the rate of utilization of existing facilities to the utmost by the provision of new equipment to existing ports and revisions in the organization and functions of the Ports and Navigation Organization. Secondly, it is intended to eliminate the shortage of present capacity by constructing new jetties in Bandar Shahpur, and if the increase in exports and imports in the north requires it, the establishment of a new port in the south-east of the Caspian (Gorgan Gulf) will be studied and implemented. In Bandar Abbas, a dry dock will also be built for the repair of large vessels, while to facilitate the exploitation of marine resources in the south, the construction of smaller ports, Deir, Jask, Lengeh, Kenarak and the establishment of fishing ports at Bushehr and Bandar Abbas are also included in the programme. In view of the increase in exports to the southern side of the Persian Gulf, and in order to ensure better communications between Iranian ports and to handle domestic freight in the Persian Gulf, attention will also be paid in the Fourth Plan to strengthening of the navigation company that is about to be established (Table 31).

RAILROADS



Jolfa
Tabriz
Maragheh
Miyaneh
Rasht
Zandjan
Ghazvin
Bandar-Shah
Sari
Shahi
TEHRAN
Shahrud
Damghan
Semnan
Mashhad
Neishabour
Saveh
Hamadan
Kermanshah
Ghom
GREAT SALT DESERT
Arak
Kashan
Bad
Andimeshk
Esfahan
Yazd
GREAT SAND DESERT
Ahwaz
Bandar-Shahpoor
Khorramshahr
Abadan
Shiraz
Kerman
Zahedan
Mirjaveh
Bandar-Abbass
Existing Railroads at the end of The Third Plan
Railroads under construction
Proposed Railroads for The Fourth Plan
Proposed Railroads for The Fifth & Next Plans

TABLE 31 — FOURTH PLAN CREDITS FOR PORTS
(MILLIONS OF RIALS)

	Description	Credits allocated	Section total
1	**Completion of work in progress**		300
	Bandar Shahpur dockyard and complementary projects	270	
	Supervision	30	
2	**New projects for major ports**		4,150
	Construction of Bandar Shahpur jetty including supervision	1,350	
	Construction of a port in the south-east of the Caspian (Gulf of Gorgan)	750	
	Completion of water and power installations, warehouses and deepening of canals at Bushehr, and work on harbour of Kharg	150	
	Construction of 3 warehouses, completion of water and power installations, construction of ship repair unit, widening and lengthening of one basin, construction of a 300-metre jetty and other facilities at Bandar Abbas	1,700	
	Construction of warehouses, jetty railway and lengthening of sea wall at Bandar Pahlavi	200	
3	**Operational equipment for all major ports**	1,400	1,400
4	**Small ports and fishing harbours**	600	600
5	**Manpowers**	250	250
6	**Study of projects and coastal depth measurement**	100	100
	Grand Total		6,800

b. Qualitative objectives

These are to revise the organization and functions of the Ports and Navigation Organization, to delegate the necessary authority to the director of each port in operational matters, to provide employment facilities aimed at producing a technically competent staff, to improve the operation of new installations in ports, and possibly to transfer some of the handling activities to the private sector.

23 - AIRPORTS

The average annual increase in domestic air traffic in recent years has been 23 per cent, and in view of the increase in air traffic in future years and the need to implement national socio-economic plans the quantitative and qualitative objectives of the Fourth Plan are as follows:

a. Quantitative objectives

i. the completion and equipping of the Yazd, Kerman, Tabriz, Rezaiyeh, Rasht, Bandar Abbas, Zahedan, Hamadan, Kermanshah, Sanandaj and Ramsar airports, the construction of which started during the Third Plan, and the development of existing airports so as to achieve improved utilization;

ii. the survey and construction of an airport at Gorgan and small airports in the towns of Birjand, Iranshahr

DEVELOPMENT AND CONSTRUCTION OF PORTS AND AIRPORTS AT THE END OF THE FOURTH PLAN

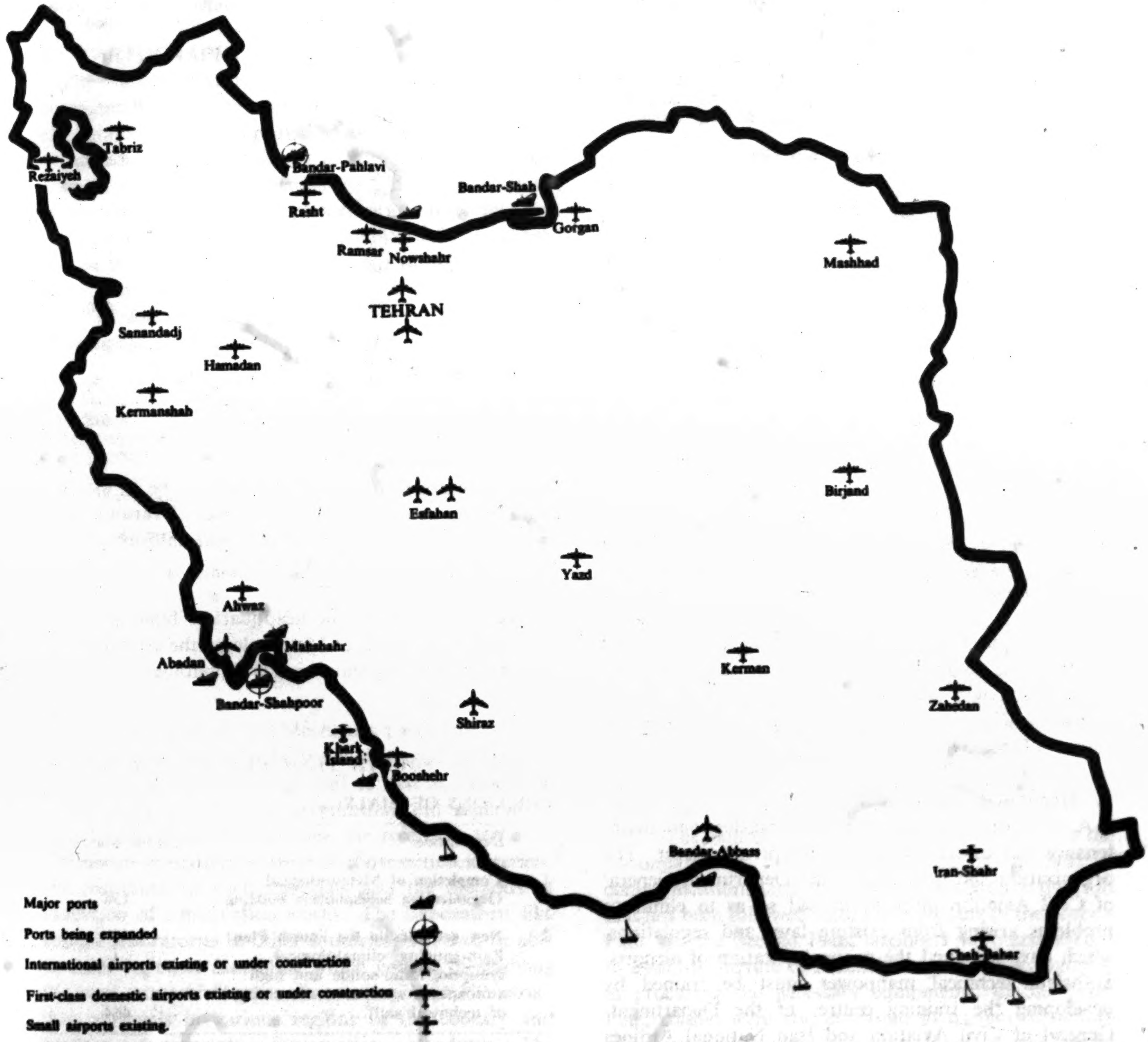

Tabriz
Rezaiyeh
Bandar-Pahlavi
Rasht
Bandar-Shah
Gorgan
Ramsar
Nowshahr
TEHRAN
Mashhad
Sanandadj
Hamadan
Kermanshah
Esfahan
Birjand
Yazd
Ahwaz
Mahshahr
Abadan
Bandar-Shahpoor
Kerman
Zahedan
Shiraz
Khark Island
Booshehr
Bandar-Abbass
Iran-Shahr
Chah-Bahar
Major ports
Ports being expanded
International airports existing or under construction
First-class domestic airports existing or under construction
Small airports existing.
Ports to be constructed
Fishing ports to be constructed
International airports in the Fourth Plan
First-class domestic airports in the Fourth Plan

TABLE 32 — FOURTH PLAN CREDITS FOR AIRPORTS
(MILLIONS OF RIALS)

	Description	Credits allocated	Section total
1	**Completion of and provision of equipment for existing airports:**		3,000
	Rezaiyeh, Rasht, Yazd, Kerman, Bandar Abbas, Zahedan, Kermanshah, Hamadan, Sanandaj, Ramsar, Shiraz, Abadan, Mehrabad, Mashhad, Ahwaz and Bushehr airports	3,000	
2	**Construction of new airports:**		1,880
	Tehran	1,000	
	Esfahan	500	
	Gorgan	220	
	Birjand	80	
	Iranshahr	40	
	Chah Bahar	40	
3	**Maintenance of airports**	300	300
4	**Training of technical staff**	200	200
5	**Research**	20	20
	Grand Total		5,400

and Chah Bahar so as to complete the domestic air network;

iii. the survey and construction of new airports at Tehran and Esfahan capable of handling the new types of aircraft used by international airlines;

iv. during the Fourth Plan period, the domestic and international routes of the Iranian National Airlines Corporation will also be expanded, and new Boeing aircraft will gradually start operating on all principal routes (Table 32).

b. Qualitative objectives

A study will be made on how to transfer some maintenance and service activities to the private sector. The organization and functions of the Department-General of Civil Aviation must be revised so as to eliminate problems arising from existing laws and regulations, which have impaired the proper operation of airports. Sufficient technical manpower must be trained by developing the training centres of the Department-General of Civil Aviation and Iran National Airlines Corporation.

24- METEOROLOGY

The objective of the Fourth Plan will be to increase the number of meteorological stations of various types so that vital and reliable meteorological information can be obtained.

The completion of the headquarters building of the Department-General of Meteorology, the establishment of 300 rain-gauging stations, 200 climatological stations,

TABLE 33 — FOURTH PLAN CREDITS FOR METEOROLOGY
(MILLIONS OF RIALS)

	Description	Credits allocated
1	**Completion of Meteorological Organization headquarters building**	136
2	**New activities in the Fourth Plan:** Rain-gauging, climatological, synoptic, radio-sonde and high atmosphere stations and training of technical staff.	464
	Total	600

five synoptic stations, and the procurement of other meteorological materials have been included in the programme. Provisions have also been made for the training of technical personnel required by the Department-General of Meteorology (Table 33).

25 - CARTOGRAPHY

The National Cartographic Centre, which is run on a commercial basis, recovers the cost of the various cartographic services it provides from public and private organizations. The objective of the cartography programme includes strengthening the Centre by assisting in the training of technical personnel and providing for essential new equipment. Under the Fourth Plan, credits will be provided to cover the training of 100 cartographers, 250 cartographic technicians, and the procurement of sounding equipment for geographical surveys of seas adjacent to Iran (Table 34).

TABLE 34 — FOURTH PLAN CREDITS FOR NATIONAL CARTOGRAPHIC CENTRE
(MILLIONS OF RIALS)

	Description	Credits allocated
1	Depth measurement equipment	48
2	Training of technical staff	52
	Total	100

26 - Technical and Soil Mechanics Laboratory.

The Laboratory must be better equipped and strengthened in terms of technical staff so that in addition to undertaking tests for the preparation and supervision of projects, it can also assume the role of a technical consultant in matters relating to construction materials, the resistance of such materials and the methods of execution of construction works. The Laboratory, like similar laboratories in other countries, will thus be able to fulfil its basic functions, which consist of studying the most economical types of construction and construction materials in various regions of the country and prepare appropriate construction standards. The Laboratory should also keep abreast of the latest scientific and technical developments in other countries and should play a major role in publicizing up-to-date economic and technical procedures by the publication of technical articles and directives, and by organizing seminars. The Fourth Plan therefore envisages the equipment of laboratories capable of conducting research into road-construction, construction materials, the strengthening of technical research staff, and the study and implementation of general research projects which will result in substantial savings in the execution of operations. The propagation of modern techniques and if necessary the revision of general specifications and construction standards on the basis of these studies are also recommended (Table 35).

TABLE 35 — FOURTH PLAN CREDITS FOR TECHNICAL AND SOIL MECHANICS LABORATORY
(MILLIONS OF RIALS)

	Description	Credits allocated
1	Procurement of laboratory equipment for research into road building and construction materials	35
2	Conducting tests and research for preparation of norms and standards relating to roads, buildings and construction materials	20
3	Preparation of general research projects and execution thereof for operations such as classifying the country's soils and stone, preparation of economic specifications for buildings in various regions and related work	45
	Total	100

POLICIES OF THE FOURTH PLAN

27 - The Fourth Communications Plan consists of the continuation of previous programmes in the field of communications, and the policy is to continue the path that has been followed since the beginning of the Second Plan. In the Second Plan, engineers were encouraged to establish private contracting firms and were assisted in procuring the necessary equipment. In the Third Plan, studies were also entrusted to Iranian consulting engineers, and thus a sufficient number of experienced and well-equipped contractors and consulting engineers

became established. The shortage of contractors and consulting engineers at the start of the Second Plan and during part of the Third Plan made it necessary for a portion of development funds to be allocated for the establishment of well-equipped technical firms. During the Fourth Plan period, utilization must be made of the investments made in the course of the previous Plans to train personnel and create private contracting firms in the country; and public agencies, which are in principle established for the purpose of supervising construction operations and operating and maintaining installations and facilities created by the implementation of development projects, should be equipped and strengthened. Since proper operation and maintenance will only be possible if specialized technical personnel are responsible for such work, decisions should be taken and implemented during the Fourth Plan period to re-inforce the technical staff of Government agencies, while the assignment of technical and specialized responsibilities to individuals who are not specialists in the subject involved should be avoided.

Through more careful supervision and study of the surveys prepared by consulting engineers the policy will be to see that the latter always conduct their surveys and execution operations in accordance with the latest scientific, technological and economic developments. They should also carry out applied research work themselves. Responsible Government agencies should guide consulting engineers and contractors in the preparation and execution of research projects.

Particular attention should be paid to improving the operation and maintenance of existing communications facilities during the Fourth Plan period. It is also essential to draw up and put into effect appropriate organizational and personnel regulations so as to eliminate present problems related to the separation of functions and responsibilities and in the case of agencies responsible for the operation and maintenance of facilities, to maintain proper staff.

In view of the national requirements for roads, and with regard to surveys made in connection with creating communication axes, the executive policy of the Fourth Plan will be exclusively the construction and reconstruction of roads and the execution of operations, the priorities of which have been established in the Plan.

EXECUTIVE POLICIES

28 - In the Fourth Plan the enforcement of the following executive policies is essential in the case of major and feeder roads.

a. During the Fourth Plan period, the construction of major, provincial and regional roads will in principle be carried out by contractors, and rural roads will be built by the organization responsible for the execution of development projects in each region with the assistance of farmers. In order to decentralize and regionalize road maintenance operations, the supervision of the execution and maintenance of provincial and regional roads will be undertaken by the local branch of the Ministry of Roads in each province while the maintenance of rural roads will be entrusted to the local authorities.

b. The survey and execution of major road repair works involving heavy equipment, large numbers of personnel or great expense, such as resurfacing asphalted roads, constructing large technical structures and reconstructing and asphalting roads, will be entrusted to qualified contractors.

c. For the supervision of construction works carried out by contractors, the Ministry of Roads requires a strong staff of engineers who are familiar with modern principles of road-construction and maintenance. Every region of the country will be supervised by experienced engineers according to the categorization system of the Ministry of Roads. In order to provide for such technical staff, the Ministry of Roads will send an adequate number of experienced engineers for on-the-job training in methods of constructing and maintaining asphalted and gravel roads to countries noted for their practical achievements and research in such matters.

d. In view of the basic responsibility of the Ministry of Roads for the supervision of construction and maintenance of major and feeder roads, the Ministry will in principle abstain from constructing roads itself should such construction require maintaining heavy equipment. In order to carry out emergency and exceptional operations, however, and to keep Government agencies informed of the actual conditions and cost of the execution of road construction works, the Ministry of Roads will set up a construction unit which will operate on a commercial basis.

e. The Technical Bureau of the Ministry of Roads, in addition to supervising carefully all construction works, will conduct applied research in order to find out the most economical ways of constructing, maintaining and supervising roads in various provinces, and, to do this, it will prepare executive projects and technical specifications. Such operations will be carried out by the Technical Bureaus of the Road Department of every province or district for the regions concerned. General guidance for the conduct of research work, preparation of research programmes, and co-ordination of the execution of such operations will be carried out by the Central Technical Bureau of the Ministry of Roads, which will also be responsible for checking the condition of roads, the preparation of safety projects for national roads and the supervision of the implementation of such projects.

f. In the Fourth Plan, Iranian consulting engineers will be encouraged to develop specialized fields, and to use the latest scientific and technological methods so as to economize in the use of specialized technical manpower. Special conferences will be organized for consulting engineers, and their project surveys will determine the maximum investment required for each road. Consulting engineers will thus be obligated to carry out careful surveys for the preparation of projects which will meet requirements at minimum cost.

g. The Department-General of Road Maintenance of the Ministry of Roads will be responsible for the continuous supervision and maintenance of the country's main and feeder roads. This department will itself only carry out routine reconstruction and maintenance of technical structures, and in the case of major maintenance operations it will act through contractors whose operations will be carefully supervised by the Ministry of Roads. The department will examine carefully the status of all roads from the point of view of the mechanical strength of various sections and structures and with due regard to statistics and forecasts of increases in the volume of traffic. It will also identify all major repair works on each route, allowing for traffic and regional climatic conditions, and prepare each year a comprehensive programme for all maintenance work which the national roads will require over the next five years. All projects relating to the construction of new roads will include safety installations as necessary.

h. The weights of trucks will be checked more frequently and more carefully on each route with no exceptions other than urgent cases in accordance with a Ministrial Decree. The traffic police and other responsible agencies shall establish detailed regulations for signs and maximum permitted dimensions of vehicles and shall prevent the operation of defective vehicles, and record roads traffic on a properly planned system.

i. The engineering and design specifications of asphalted roads will be carefully determined in the light of the future requirements of national and local traffic. In connection with all road projects, the possibility of completing and reinforcing the surface coating in future years will be surveyed under a specific programme, with due regard to the increase in the volume of traffic, so that if considered economic the construction of roads can be completed in different stages depending on the availability of resources and needs, thus preventing excessive investment at the initial stage.

j. Construction standards and general specifications of construction works will be carefully prepared for various regions of the country, in the light of the latest scientific and technical advances developed in co-operation with laboratories and research work conducted by technical laboratories. The output of different types of road-construction equipment, as well as the unit price of construction operations in different regions of the country will also be calculated, with due regard to the availability of manpower and construction materials.

k. So that the country's minimum requirements for roads can be met within an acceptable period of time, in cases where the design specifications of a given route can satisfy the traffic demand for the next ten years the existing road will only be repaired and asphalted:

the construction of new roads along existing routes will be avoided.

l. In order to avoid duplication of investments, measures will be taken to use heavy road-construction equipment belonging to private enterprises as capital to form a commercial company which will be responsible for the operation of the equipment, and the requirements of contractors and other similar companies to rent equipment will be met in this way. Efforts must also be gradually made to standardize road-construction and maintenance machinery.

29 - RAILWAYS

Executive policies affecting the railway system include a revision of the present organization, tariff rates, accounting, operational and administrative systems, and the management of buildings, permanent way and traction equipment so that the railway system operates as a commercial organization. The implementation of the following measures is therefore essential to improve the utilization and maintenance of installations and equipment:

a. Improved utilization

i. The Iranian State Railways should be provided with an adequately equipped commercial and marketing organization which should be constantly aware of the country's needs for the transportation of goods and should undertake the transport of goods by establishing contact with commercial organizations.

ii. At present, the railway tariffs for the transportation of specific goods and passengers are fixed, and despite the exigencies of various seasons of the year and economic trends are rarely susceptible to change. The railway system does not therefore have the freedom and flexibility required to compete with other means of transport.

In the Fourth Plan, arrangements must be made so that railway tariffs can easily and without formality be revised and modified according to the exigencies of prevailing conditions. The purpose of such changes will be to attract more customers for the railway services and adopt an economic policy for the maximum utilization of existing equipment.

iii. In addition to transport costs for goods and passengers, the railway system must be able to compete with other means of transport in speed of transport, easy terms for the acceptance of goods and the provision of insurance for consignments. In recent years, the Iranian State Railways has lost a large number of its customers not only because of the disproportionate cost of transport, but also because of delays, excessive red tape and the absence of insurance facilities for customers who wish to insure their goods. The Fourth Plan should ensure that programmes are undertaken for speedier and more reliable forwarding of consignments, increased speeds of passenger trains on certain lines and reductions in stops at certain stations, and simplification of procedures for the acceptance and delivery of goods by reducing red tape. The Iranian State Railways will also take the necessary action to enable goods to be insured and in order to attract customers and facilitate transportation, services should be provided to convey goods from the forwarder's warehouse to the station of origin and from the station of destination to the consignee's warehouse.

iv. At present, owing to the lack of close co-operation between the Ports and Navigation Organization and the Iranian State Railways in connection with the transport of Government goods, a large number of rail-wagons often wait for a long time at the docks for the arrival of vessels which have been delayed, or by contrast the transport of such goods is delayed pending the arrival of wagons. In this respect the Iranian State Railways should be provided with a proper telecommunication system and well-equipped commercial services so as to be aware of the requirements of ports, and of the quantities of goods imported on each vessel.

v. In the Fourth Plan period, the Government will take measures to compensate for tariff reductions granted by the Iranian State Railways to Government departments, exporters and so on, at its request, so as to help overcome some of the financial difficulties facing the Iranian State Railways.

vi. The principles of industrial accounting will be established in the Iranian State Railways and efforts will be made to prepare annual balance sheets in due time (by the month of Aban each year).

b. Improved maintenance of installations and equipment:

i. The Iranian State Railways will prepare each year a comprehensive programme of essential maintenance and repair of buildings and permanent way allowing for depreciation, to cover the five following years.

ii. Services and operations related to the maintenance of wagons and locomotives should be carried out in due time, on the basis of a detailed programme prepared on technical principles.

iii. Domestic factories producing sleepers should be developed and equipped so as to meet the requirements of the Iranian State Railways.

iv. As regards the supply of ballast, the Iranian State Railways will prepare a five-year programme and obtain its annual requirements on the basis of this programme from specific sources.

v. In order to ensure the technical staff required, the Railway Technical School will be strengthened, and the employment conditions of specialized manpower will be improved.

vi. The Iranian State Railways will refrain from hiring any non-technical staff employee until a balance has been established between the volume of work and the number of staff.

30 - PORTS

For the maximum utilization of port installations, special financial, employment and organizational laws and regulations, covering the following cases, will be prepared for the Ports and Navigation Organization and enforced:

a. The Ports and Navigation Organization will operate under the supervision of the Ministry responsible for the construction and maintenance of all communications facilities in the country.

b. The management of each major port and of any port which the Ports and Navigation Organization may consider important, will be legally empowered to administer all matters relating to the operation of the port, such as the railways and other urban and port installations. Each port will function as a commercial unit under the supervision of the Ports and Navigation Organization.

c. The management of each port will be permitted to enter into contracts of limited duration with competent private organizations for the execution of all or part of the internal port services and operations, such as the loading and unloading of cargo, and cargo-handling in the dock and customs area, provided such contracts do not infringe upon the Government's jurisdiction and the administrative functions of the port authorities. Private organizations will also be permitted to invest in the construction of installations, the provision of traction equipment and cargo-handling operations. Shipping companies, chambers of commerce and forwarding agents will be permitted to construct jetties and warehouses at their own expense, at first for their own use and later for the use of the Ports and Navigation Organization, according to special conditions.

d. Revisions will be made in storage tariffs so that transit warehouses are not used as ordinary warehouses for long periods of time.

e. In addition to establishing and strengthening technical schools for the training of the required personnel, and sending students abroad for training, special regulations will be enforced so as to ensure technical manpower. These regulations will allow for the duties of each employee, the specialized skills required and conditions of pay offered by other port agencies for similar positions.

f. To improve directional guidance given to ships and to ensure the maximum utilization of jetties, each port will be equipped with a telecommunications network enabling it to establish communication with ships as soon as they arrive in Iranian territorial waters.

g. For the maintenance of port equipment and installations, the Ports and Navigation Organization will prepare annually a detailed programme for the following five years, allowing for the amortization of machinery and repair requirements. All regular repairs and maintenance work affecting equipment and facilities utilized in port operations will be carried out according to this programme.

31 - AIRPORTS

In order to improve the operation and maintenance of the country's airports, a revision will be made in the organization and powers of the agencies responsible for such matters. Attention will also be paid to strengthening their technical staff. For these purposes the following executive policies will be enforced:

a. Broader financial and personnel powers will be granted to the Department-General of Civil Aviation.

b. The Department-General of Civil Aviation shall prepare a detailed five-year maintenance programme for airports. The implementation of this programme in the case of runways and other technical structures will be entrusted to suitably qualified contractors according to the specifications determined in this programme for this period.

Suppliers shall be responsible for servicing and maintaining telecommunications facilities and equipment on a regular basis for a five-year period, during which time the Department-General of Civil Aviation shall train the required technical manpower for the maintenance of such equipment.

c. In order to provide the technical staff required, existing training centres will be strengthened and equipped, and special technical bonuses will be awarded to the technical staff of the Department-General of Civil Aviation.

d. The Department-General of Civil Aviation shall as soon as possible prepare and submit to the Government for approval a new civil aviation code in conformity with the development of airport utilization, the expansion of routes and the changes brought about by the introduction of new types of aircraft.

e. The cost of services rendered by the Department-General of Civil Aviation to other agencies and companies will be payable to the Department-General.

DISTRIBUTION OF CREDITS

32 - In the Fourth Plan, an amount of Rials 80 billion has been allocated to the communications sector. Table 24 gives a breakdown of the various sections under the communications sector together with the estimated expenditure on each section. The allocation of credits for individual sections of the communications sector is shown in Tables 25 to 35.

Some of these credits have been allocated for surveys, the construction of new roads, railways, ports, airports, and supplying the equipment required. Others are allocated for the maintenance and improved operations of various existing installations and those to be constructed, and for training specialized technical manpower. In the case of the maintenance of main and feeder roads, in addition to the current road-maintenance budget, the cost of part of such operations has been determined and included in the Plan together with the cost of procuring machinery and equipment required for maintenance. In this regard, a complete and precise estimate of all available road maintenance machinery and its rate of depreciation will be prepared, and the total requirements for machinery will be determined in accordance with a specific programme and allowing for depreciation, for which an appropriate sum will be included in the road-maintenance budget of the Ministry of Roads, both for existing equipment and future purchases. In future, as new roads are handed over to the Ministry of Roads, the quantity of road-maintenance machinery required will be made available to the Ministry, and the Ministry will thereafter be responsible for the replacement of such equipment from its road-maintenance budget, which will provide for the cost of depreciation.

CHAPTER 13

TELECOMMUNICATIONS

INTRODUCTION

1 - The economic, social and political needs of various countries and the need for contact between their peoples has brought about interdependence and permanent relationships among all regions. Each different communication system plays an important part in strengthening such ties; in fact, in view of the part played by these systems (such as the telephone, telegraph, postal, radio and television services) in speeding up the establishment of communications, their installation and development on a well-organized basis, with up-to-date equipment, forms one of the main prerequisites of economic development, and their expansion in line with other development programmes has become a sine qua non. The expansion of Iranian communication systems has not kept pace with public demand, owing to the vast size of the country, the dispersion of the population and the failure to earmark sufficient funds for it under the previous development plans. The telecommunication programmes under the Fourth Plan were therefore designed to ensure that the facilities provided will not only cover the existing demand but will also cope as far as possible with future needs.

APPRAISAL OF THE PREVIOUS PROGRAMME

2 - The telecommunication and postal programme laid down in the Third Plan was primarily intended to establish a sound and reliable system which could gradually be expanded in the light of the general volume of demand in future development plans. Some of the related projects were implemented under the Third Plan, the most important of which consisted of projects relating to microwave telephone and telegraph communications, the expansion of postal services and the reinforcement of the national radio network. The National Television of Iran service was later established under the Plan, as part of the same programme.

3 - LOCAL TELEPHONE EXCHANGES

At the start of the Third Plan, Tehran and such cities as Esfahan, Ahwaz, Khorramshahr, Rasht, Ghom, Kermanshah and Mashhad were provided with automatic telephone exchanges. The Third Plan aimed at converting the magnetic telephonic systems to automatic telephones in as many as 22 towns. However, owing to the installation of a large number of telephones in Tehran and the financial limitations of the Iranian Telephone Company, only 14 towns (Abadan, Babol, Rezaiyeh, Zahedan, Zanjan, Sari, Ghazvin, Kashan, Karaj, Kerman, Gorgan, Gonabad, Hamadan and Yazd) were provided with automatic telephone systems in the Third Plan period. Table 1 shows the number of telephones and exchanges at the beginning and the end of the Third Plan.

By the gradual switch-over from magnetic telephone exchanges to automatic ones, magnetic telephone ex-

TABLE 1 — STATE OF LOCAL TELEPHONE SYSTEMS BY THE END OF THIRD PLAN

Period	Number of telephones		Number of exchanges	
	Automatic	Magnetic	Automatic	Magnetic
Beginning of the Third Plan	106,800	31,859	Tehran and 9 Towns	164 Towns
During the Third Plan	95,300	3,222	Tehran and 14 Towns	8 Towns
End of the Third Plan	202,100	35,081	Tehran and 23 Towns	172 Towns

TABLE 2 — STATUS OF TELEPHONE AND TELEGRAPH TRAFFIC DURING THE THIRD PLAN (MILLIONS OF UNITS)

Year	Telephone		Telegraph	
	Number of calls	Minutes	Number of telegrams	Words
1341	1.4	5.6	5.3	114
1346	8.2	29.0	7.0	124

changes have been replaced by automatic ones and installed in towns formerly without any telephone exchanges. For this reason, the number of magnetic telephone subscribers did not substantially increase during the Third Plan.

4 - LONG-DISTANCE TELECOMMUNICATIONS

At the beginning of the Third Plan, telephone communications were established at 300 points and telegraphic connections at 506 points (equipped with Morse and teletype), through the carrier, 400-watt, 50-watt, and 17-watt HF transmitter systems.

In the Third Plan, 70 per cent of the total allocation for telecommunications was allotted for establishing new microwave networks on 7 different routes, so that the completion and commissioning of the Trans-Iranian and Esfahan-Shiraz microwave systems ensured telephone and telegraph communications in various regions of 10 provinces. The Trans-Iranian and Esfahan-Shiraz networks were commissioned during the Third Plan and tenders have now been invited for 7 microwave routes. Meanwhile, through the installation of 12,390 kilometres of copper cables and the procurement of 118 terminals, 287 telephonic channels have been set up, establishing communication between 63 points. Furthermore, Morse was replaced by teletype in the same period. Table 2 shows the increase in telephone and telegraph traffic under the Third Plan.

In spite of the fact that most Government and all private agencies use special networks, the facilities provided by the new installations are inadequate to meet the extra public demand, and the gap between supply and demand is still tremendous. It will, however, be narrowed upon the completion and commissioning of the microwave systems.

5 - INTERNATIONAL TELECOMMUNICATIONS

At the start of the Third Plan, Tehran was in direct telephone communication with 6 European and Asian countries by two sets of 20 and 30-kilowatt "single-side band" transmitters. Tehran also had direct telegraph links with the U.S.A. and 9 Asian and 7 European countries by three sets of 5-kilowatt transmitters.

Under the Third Plan, through the installation of one 20-kilowatt, single-side band transmitter, six sets of 5-kilowatt telegraph transmitters, 25 sets of receivers and 4 terminals, and by using the Trans-Iranian Microwave system (18 telephone and 10 telegraph channels), the number of working hours for telephone and telegraph communication with the above-mentioned countries was increased. Through the operation of these sets, the volume of telephone traffic with foreign countries is 3.5 times as much and the number of telegraph words 2.5 times as much as what they were at the beginning of the Plan period (Table 3).

6 - Post — At the beginning of the Third Plan, the Iranian Post Office was not well enough equipped and organized to meet national requirements. However, a substantial expansion in postal services was achieved under the Third Plan. The extent to which the Plan targets were attained is shown in Table 4.

The expansion of postal services, the use of rapid means of transport and the increase of distribution by as much as 2 to 6 times per week raised the volume of mail from 181 million exchanges of correspondence in 1341 (1962) to 261.5 million in 1346 (1967), as shown in Table 5.

TABLE 3 — INTERNATIONAL TELEPHONE AND TELEGRAPH TRAFFIC DURING THE THIRD PLAN (THOUSANDS OF UNITS)

Year	Telephone		Telegraph	
	Number of calls	Minutes	Number of telegrams	Words
1341	14	51	252	6,300
1346	36	172	500	15,000

TABLE 4 — EXPANSION OF POSTAL SERVICES UNDER THE THIRD PLAN

	Number at the beginning of Third Plan	Increase during Third Plan	Number at end of Third Plan
1. Central post offices in major cities	52	—	52
2. Post offices in provincial centres	100	70	170
3. Rural post offices	450	425	875
4. Sub post offices	265	15	280
5. Public post boxes	800	11,200	12,000
6. Private post boxes	5,000	30,000	35,000

TABLE 5 — VOLUME OF POSTAL SERVICES DURING THE THIRD PLAN (THOUSANDS OF UNITS)

Year	Domestic		International		
	Ordinary mail	Registered mail	Ordinary mail	Registered mail	Total
1341	160,000	5,000	15,400	728	181,128
1346	230,000	8,500	22.000	1,000	261,500

7 - Radio — At the start of the Third Plan, the total power of the country's radio transmitters for broadcasting central and local programmes amounted to 600 kilowatts. The Third Plan provided for the erection of one 100-kilowatt and three 50-kilowatt short-wave transmitters for relaying local programmes. However, during the Third Plan, the power of these transmitters was considered inadequate for the nation's radio networks; instead, three sets of 100-kilowatt and one set of 250-kilowatt short-wave transmitters, and also two sets of medium-wave transmitters (with a total power of 2,000 kilowatts) were purchased for Tehran.

TABLE 6 — TRANSMITTERS INSTALLED AT THE END OF THIRD PLAN (KILOWATTS)

	Location	Type of transmitter (wave)	Beginning of Third Plan		Increase during Third Plan		End of Third Plan	
			Number of transmitters	Power of transmitters	Number of transmitters	Power of transmitters	Number of transmitters	Total power of transmitters
1.	Tehran	Short	3	100;20;2	4	250;100;100;100	7	672
		Medium	3	100;50;1	3	2000;100;10	6	2,261
		FM	—	—	1	10	1	10
2.	Tabriz	Short	2	7.5;5	—	—	2	12.5
		Medium	—	—	1	100	1	100
3.	Zahedan	Medium	2	100;1	1	10	3	111
4.	Kermanshah	Medium	2	100;1	1	10	3	111
5.	Ahwaz	Medium	2	100;1	1	10	3	111
6.	Rasht	Medium	1	1	2	100;10	3	111
7.	Shiraz	Medium	1	1	1	10	2	11
8.	Esfahan	Medium	1	1	1	10	2	11
9.	Mashhad	Medium	1	1	1	10	2	11
10.	Gorgan	Medium	1	1	—	—	1	1
11.	Kerman	Medium	1	1	—	—	1	1
12.	Sanandaj	Medium	1	1	—	—	1	1
	Total		21	595.5	17	2940	38	3535.5

These three sets of 100-kilowatt transmitters were set up during the Third Plan period, while the erection of the 2000-kilowatt medium-wave transmitters and the 250-kilowatt short-wave transmitter is scheduled for completion at the beginning of the Fourth Plan. Furthermore, eight sets of 10-kilowatt and three sets of 100-kilowatt transmitters were purchased and installed to strengthen the national radios networks. The capitals of Khuzestan, Kermanshah, Zahedan, Gilan, Azarbaijan and Tehran provinces were equipped with 100-kilowatt transmitters, and one 10-kilowatt FM transmitter was procured and brought into service in Tehran. The total power of the nation's broadcasting transmitters by the end of Third Plan was therefore stepped up to 3540 kilowatts as shown in Table 6.

8 - TELEVISION

At the beginning of the Third Plan, the nation's television network consisted of only 2 transmitting stations, one of which was located in Tehran and the other in Abadan, both operated by the private sector.

During the Third Plan, in addition to the erection of one set of repeater stations for relaying Abadan TV programmes to Ahwaz, the number of broadcasting hours of these two transmitters was increased. At the start of the Third Plan, it had been decided that the nation's television network would still be operated by the private sector, which would also be responsible for its expansion. During the Plan period, however, the need for setting up a state TV network which would keep the people better informed of the country's social and economic developments was realized. A national television service was therefore set up in Tehran and started to operate temporarily in 1966. In this way preparations were made for the establishment of a countrywide TV network.

GENERAL OBJECTIVES OF FOURTH PLAN'S TELECOMMUNICATION PROGRAMME

9 - An assessment of the Third Plan shows that, owing to the steady increase in the country's social and economic activities and the failure to reach certain

targets under the Third Plan, the number of applicants for telecommunication services rose tremendously, with the result that the services supplied fell short of public, private and governmental needs. The principal aims of the Fourth Plan's telecommunications programme are therefore intended to ensure that:

a. telephone, telegraph and postal services will be expanded to such an extent that the supply will as far as possible be equal to demand;

b. services made available to the public are of such quality as to satisfy applicants from the standpoint of speed and reliability to permit utilization;

c. radio and television networks should be expanded and reinforced to enable the public to make maximum use of educational, socio-economic, cultural and recreational programmes and to enable Radio Iran to familiarize foreign countries with the country's development by means of overseas broadcasts.

TELECOMMUNICATION PROGRAMMES

10 - Local Telephone Exchanges. Potential country-wide demand for telephones, considering the implementation of the programme for providing long-distance automatic telephone exchanges during the Fourth Plan, is estimated at about 450,000 lines; but should the limiting factor for demand (namely subscriber deposits) still continue to operate, then the above number would be reduced to 370,000.

In view of the financial capacity of the Iranian Telephone Company, and the priority accorded to other telecommunication programmes, it will not be possible to install the number mentioned above. It is expected that a total number of 300,000 telephones will be installed and commissioned (approximately 3 times the number of telephones installed in the Third Plan period).

According to the above figure, the programme for the provision of local telephones has been established as follows:

— Expansion of the automatic telephone network in Tehran	140,000
— Establishment of automatic telephones in 34 cities and expansion in 23 cities (Table 7)	150,000
— Replacement of obsolete lines in the existing exchanges of Tehran	10,000
Total	300,000

TABLE 7 — ESTABLISHMENT AND EXPANSION OF LOCAL TELEPHONE EXCHANGES DURING FOURTH PLAN (NUMBERS OF TELEPHONES)

	Town	Number of automatic telephones at the end of Third Plan	Establishment of automatic telephones	Expansion of automatic telephones	Number of automatic telephones at the end of Fourth Plan
1.	Abadan	3,000	—	4,000	7,000
2.	Abadeh	—	1,000	—	1,000
3.	Arak	—	4,000	—	4,000
4.	Ardebil	—	3,000	—	3,000
5.	Esfahan	7,000	—	20,000	27,000
6.	Amol	—	2,000	—	2,000
7.	Ahwaz	5,000	—	10,000	15,000
8.	Babol	3,000	—	1,000	4,000
9.	Babolsar	—	1,000	—	1,000
10.	Borujerd	—	3,000	—	3,000
11.	Bandar Pahlavi	—	2,000	—	2,000
12.	Bushehr	—	2,000	—	2,000
13.	Bandar Abbas	—	4,000	—	4,000

Continued on next page

(Table 7 cont.)

	Town	Number of automatic telephones at the end of Third Plan	Establishment of automatic telephones	Expansion of automatic telephones	Number of automatic telephones at the end of Fourth Plan
14.	Behbahan	—	1,000	—	1,000
15.	Birjand	—	1,000	—	1,000
16.	Tabriz	10,000	—	17,000	27,000
17.	Torbat-e Heydarieh	—	1,000	—	1,000
18.	Jahrom	—	1,000	—	1,000
19.	Chalus-Nowshahr	—	2,000	—	2,000
20.	Khorramabad	—	3,000	—	3,000
21.	Khorramshahr	3,000	—	1,000	4,000
22.	Andimeshk	—	1,000	—	1,000
23.	Khoy	—	1,000	—	1,000
24.	Dezful	—	3,000	—	3,000
25.	Ramsar	—	1,000	—	1,000
26.	Rasht	4,500	—	2,000	6,500
27.	Rezaiyeh	2,000	—	2,000	4,000
28.	Rafsanjan	—	1,000	—	1,000
29.	Zahedan	1,000	—	1,000	2,000
30.	Zanjan	2,000	—	1,000	3,000
31.	Sari	1,500	—	1,000	2,500
32.	Sabzevar	—	1,000	—	1,000
33.	Semnan	—	1,000	—	1,000
34.	Sanandaj	—	3,000	—	3,000
35.	Shahrud	—	2,000	—	2,000
36.	Shahi	—	2,000	—	2,000
37.	Shahreza	—	1,000	—	1,000
38.	Shahsavar	—	1,500	—	1,500
39.	Shiraz	6,000	—	9,000	15,000
40.	Ghazvin	2,000	—	3,000	5,000
41.	Ghom	2,000	—	1,000	3,000
42.	Kashan	2,000	—	1,000	3,000
43.	Karaj	2,000	—	1,000	3,000
44.	Kerman	3,000	—	2,000	5,000
45.	Kermanshah	3,500	—	2,500	6,000
46.	Gorgan	2,000	—	2,000	4,000
47.	Gonbad	1,500	—	1,500	3,000
48.	Lahijan	—	2,000	—	2,000
49.	Langerud	—	1,000	—	1,000
50.	Maragheh	—	1,500	—	1,500
51.	Masjid-i-Sulaiman	—	1,000	—	1,000
52.	Mashhad	8,000	—	5,000	13,000
53.	Malayer	—	2,000	—	2,000
54.	Mahabad	—	1,000	—	1,000
55.	Neyshabur	—	1,000	—	1,000
56.	Hamadan	3,000	—	1,000	4,000
57.	Yazd	2,000	—	2,000	4,000

The number of lines installed under this programme together with the 240,000 lines already in existence, will make a total of 530,000* telephones by the end of the Fourth Plan. Consequently, the number of telephones per thousand people will increase from 9 at the end of the Third Plan to 17.4 at the end of the Fourth Plan period.

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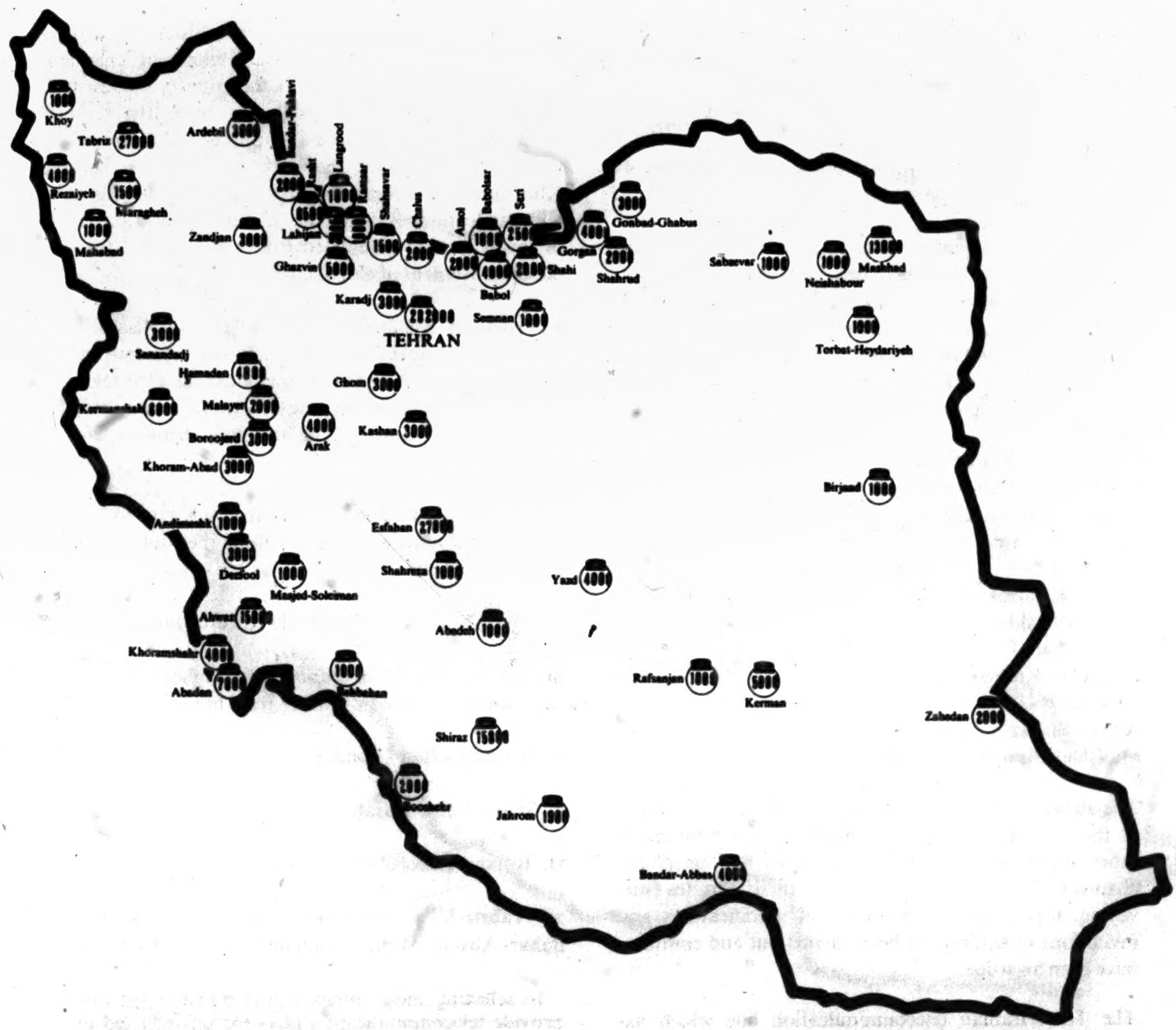
* This grand total does not include the 10,000 lines scheduled for replacement.

AUTOMATIC LOCAL TELEPHONE EXCHANGES AT THE END OF THE FOURTH PLAN


Khoy 1000
Tabriz 27000
Rezaiyeh 4000
Maragheh 1500
Mahabad 1000
Ardebil 3000
Bandar-Pahlavi 2000
Rasht 6500
Langrood 1000
Lahijan 2000
Ramsar 1000
Shahsavar 1500
Chalus 2000
Amol 2000
Babolsar 1000
Sari 2500
Babol 4000
Shahi 2000
Gorgan 4000
Gonbad-Ghabus 3000
Shahrud 2000
Zandjan 3000
Ghazvin 5000
Karadj 3000
282000
TEHRAN
Semnan 1000
Sabzevar 1000
Neishabour 1000
Mashhad 13000
Torbat-Heydariyeh 1000
Sanandadj 3000
Hamadan 4000
Ghom 3000
Kermanshah 6000
Malayer 2000
Arak 4000
Kashan 3000
Boroojerd 3000
Khoram-Abad 3000
Birjand 1000
Andimeshk 1000
Dezfool 3000
Esfahan 27000
Masjed-Soleiman 1000
Shahreza 1000
Yazd 4000
Ahwaz 15000
Abadeh 1000
Khoramshahr 4000
Abadan 7000
Behbahan 1000
Rafsanjan 1000
Kerman 5000
Zahedan 2000
Shiraz 15000
Booshehr 2000
Jahrom 1000
Bandar-Abbas 4000

11 - Long-Distance Telecommunications

The objective of the long-distance telecommunications programme as far as telephone and telegraph services are concerned consists in providing a direct dialing (subscriber to subscriber) and automatic telegraph (exchange to exchange) system.

This programme can be carried out under the following conditions:

i. Provided the circuits are adequate to the volume of traffic between two points.

ii. Provided the quality of circuits is acceptable from the standpoint of specifications and technical factors. Microwave systems and underground cables (coaxial cables) are suitable for the above purposes and are also able to relay TV programmes. The country's telecommunication networks can therefore be expected to expand in the following way:

a. Establishment of a main network by linking the nation-wide microwave system to the Trans-Iranian and Esfahan-Shiraz microwave networks.
The national microwave system consists of the following 7 routes:
Tehran-Khorramshahr
Tehran-Mashhad
Tehran-Babol
Hamadan-Kermanshah
Ghazvin-Rasht
Ahwaz-Shiraz
Mashhad-Birjand

The above routes will link the centres of 7 provinces and at the same time establish communication between 16 other towns with a final capacity of 960 telephone channels. The preliminary work on these 7 routes (surveying, topography, preparation of specifications and invitations to tender) has been carried out and contracts have been awarded.

The Trans-Iranian telecommunication line which has been installed from Ankara to Karachi links up the centres of 5 provinces and 7 other towns. This network is scheduled for a final capacity of 600 telephone channels, only a part of which has been utilized under the Third Plan. The measures necessary for its expansion and completion during the Fourth Plan period are being planned.

It is planned to establish an Esfahan-Shiraz microwave link with a final capacity of 300 telephone channels. This link, to be connected to the country's main telecommunication network, will also cover the requirements of the province of Fars. Shiraz will be linked by the above-mentioned network as well as by the Khorramshahr-Tehran to the main nation-wide telecommunication system; the telecommunication needs of towns located on related routes will be met through the establishment of closed circuits.

b. Provision has been made for the establishment of subsidiary networks through microwave systems and/or underground cables with adequate capacity for telecommunication links among the following regions which, although not located along the main network, are of economic importance:*

i. Caspian coastal line from Gonbad-e Kavus to Bandar Pahlavi, including all localities along the route as well as Gorgan-Shahrud.

ii. Saveh-Mahallat-Azna-Arak-Tafresh-Borujerd-line.

iii. Tabriz - Rezaiyeh - Mahabad - Saghez - Sanandaj - Kermanshah - Ghasr-e Shirin - Iraqi border line.

iv. Kerman - Baft - Bandar Abbas line.

v. Shiraz-Fassa-Darab-Lar-Bastak-Bandar Lengeh line.

vi. Birjand-Zabol-Zahedan line.

vii. Tabriz-Jolfa - Mashhad - Salehabad-Zahedan-Chah Bahar- Ahwaz- Masjed-i-Sulaiman- Ahwaz-Esfahan line.

In selecting these routes it was planned not only to provide telecommunication links for second- and third-

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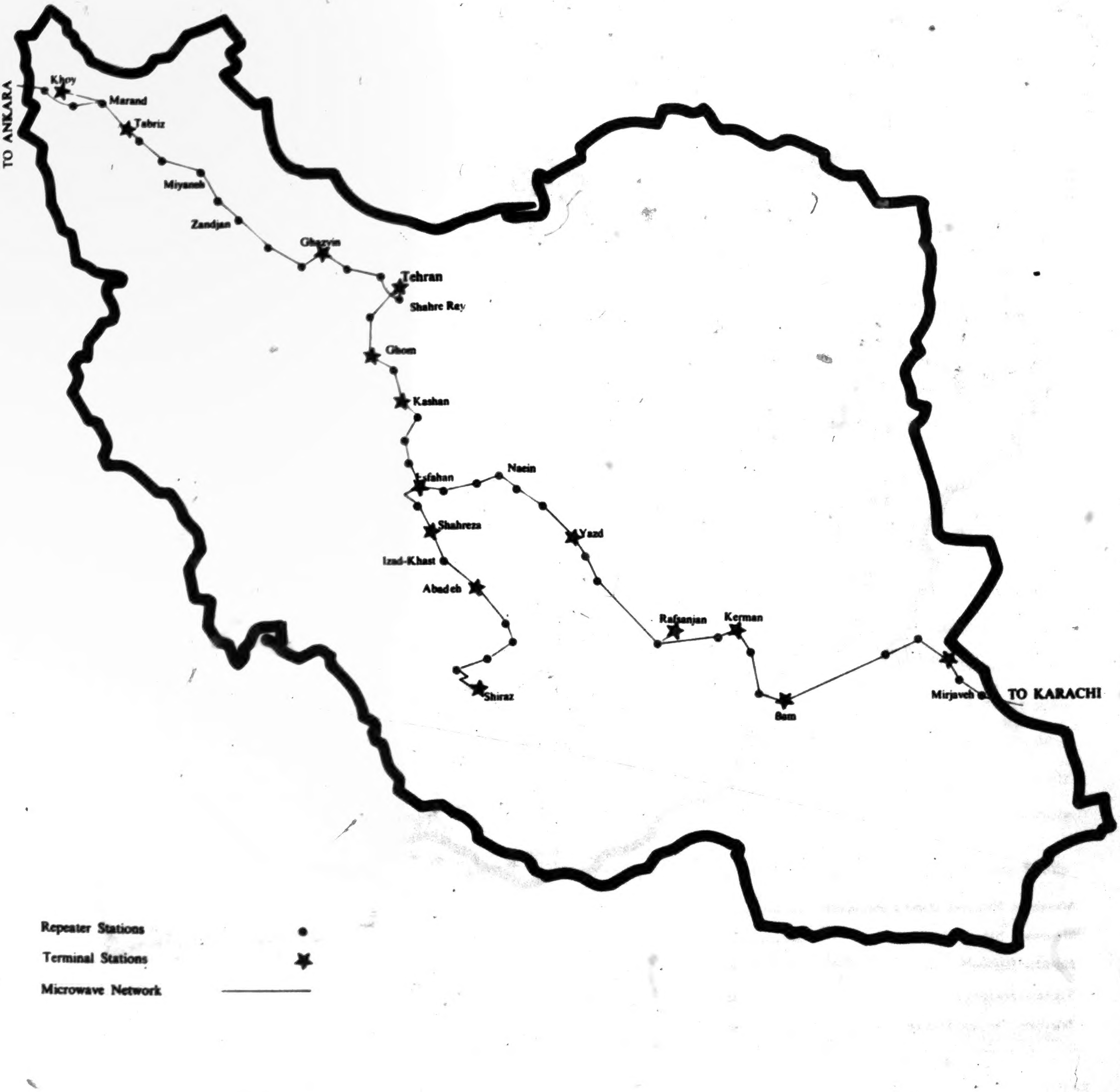
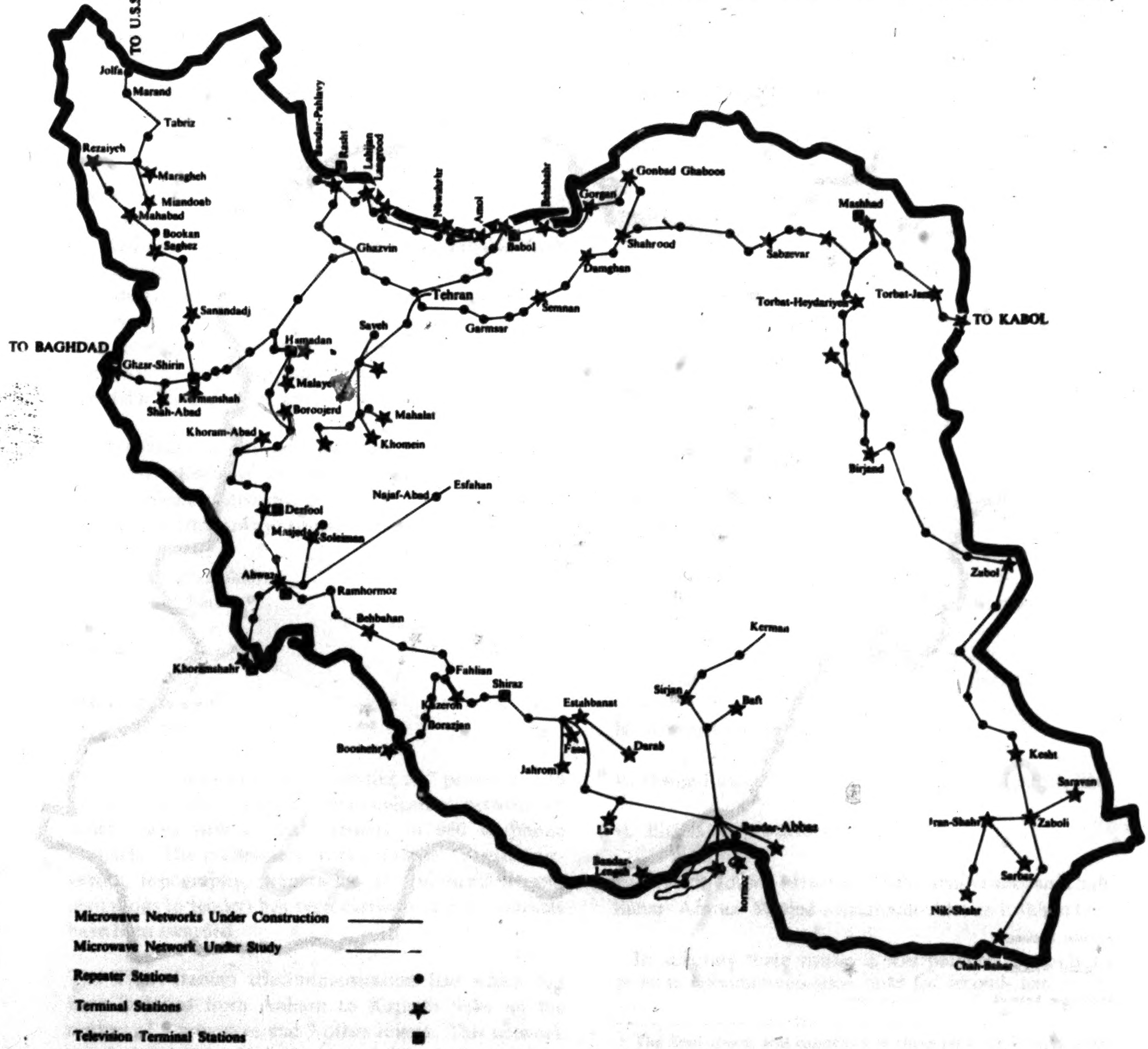
* The final routes and capacities of these lines are being studied by Consultants.

IMPROVEMENT AND ESTABLISHMENT OF NATIONAL TELECOMMUNICATION NETWORKS IN THE THIRD PLAN


TO ANKARA
Khoy
Marand
Tabriz
Miyaneh
Zandjan
Ghazvin
Tehran
Shahre Rey
Ghom
Kashan
Esfahan
Naein
Shahreza
Yazd
Izad-Khast
Abadeh
Shiraz
Rafsanjan
Kerman
Bam
Mirjaveh
TO KARACHI
Repeater Stations ●
Terminal Stations ★
Microwave Network ———

IMPROVEMENT AND ESTABLISHMENT OF NATIONAL TELECOMMUNICATION NETWORKS IN THE FOURTH PLAN (MICROWAVE AND OVERHEAD LINES)


TO U.S.S.R.
Jolfa
Marand
Tabriz
Rezaiyeh
Maragheh
Miandoab
Mahabad
Bookan
Saghez
Sanandadj
TO BAGHDAD
Ghasr-Shirin
Kermanshah
Shah-Abad
Hamadan
Malayer
Boroojerd
Khoram-Abad
Dezfool
Masjed
Soleiman
Ahwaz
Khoramshahr
Ramhormoz
Behbahan
Fahlian
Kazeroon
Borazjan
Booshehr
Shiraz
Estahbanat
Fasa
Jahrom
Darab
Lar
Bandar-Lengeh
Hormoz
Bandar-Abbas
Sirjan
Baft
Kerman
Najaf-Abad
Esfahan
Saveh
Mahalat
Khomein
Ghazvin
Tehran
Garmsar
Semnan
Damghan
Shahrood
Bandar-Pahlavy
Rasht
Lahijan
Langrood
Noushahr
Amol
Babol
Babolsar
Gorgan
Gonbad Ghaboos
Sabzevar
Mashhad
Torbat-Heydariyeh
Torbat-Jam
TO KABOL
Birjand
Zabol
Kesht
Saravan
Iran-Shahr
Zaboli
Sarbaz
Nik-Shahr
Chah-Bahar
Microwave Networks Under Construction
Microwave Network Under Study
Repeater Stations ●
Terminal Stations ★
Television Terminal Stations ■

class towns, but also to form a loop by establishing adequate peak-hour circuits by means of various routes and by connection to the national telecommunication networks. Meanwhile, in the event of failure of any system in the main or subsidiary networks or breakdown of communications between the centre of origin and destination of the route involved, calls could be re-routed.

c. Establishment of subsidiary networks through overhead lines and radio systems.

For expansion of the above networks and their connection with less populated towns, a programme has been drawn up for the overhead lines needed for carrier telephones and the erection of HF and VHF radio systems.

12 - INTERNATIONAL TELECOMMUNICATIONS

The programme proposed for the expansion and improvement of international telecommunications are as follows:

TABLE 8 — STATUS OF INTERNATIONAL TELECOMMUNICATION AT THE START AND END OF THE FOURTH PLAN

City	Direct telephonic communication		Direct telegraphic communication	
	Start of Fourth Plan	End of Fourth Plan	Start of Fourth Plan	End of Fourth Plan
London	5.5 hours — 5 days weekly	24 hours daily	24 hours daily	24 hours daily
Paris	24 hours daily	24 hours daily	24 hours daily	24 hours daily
Rome	24 hours daily	24 hours daily	24 hours daily	24 hours daily
Geneva	——	——	6 hours daily	24 hours daily
Berne	6 hours daily	24 hours daily	——	——
Frankfurt	4 hours daily	24 hours daily	24 hours daily	24 hours daily
Moscow	2 hours — 6 days weekly	24 hours daily	6 hours daily	24 hours daily
Istanbul-Ankara	24 hours daily	24 hours daily	24 hours daily	24 hours daily
Beirut	——	12 hours daily	24 hours daily	24 hours daily
Baghdad and Basrah	12 hours daily	12 hours daily	6 hours daily	24 hours daily
Kuwait	2 hours daily	12 hours daily	6 hours daily	24 hours daily
Kabul	——	24 hours daily	6 hours daily	24 hours daily
Karachi	24 hours daily	24 hours daily	24 hours daily	24 hours daily
Bombay	2.5 hours — 5 days weekly	6 hours daily	6 hours daily	12 hours daily
Tokyo	2 hours — 4 days weekly	18 hours daily	——	——
Osaka	——	——	24 hours daily	24 hours daily
Qatar-Dubai-Sharjah	——	6 hours daily	——	18 hours daily
Washington and New York	——	24 hours daily	24 hours daily	24 hours daily

a. It is planned to establish direct communication with 5 West European countries and the U.S.A. through 24 telephone channels by constructing an earth station to use the satellite telecommunication network. The channels needed to meet telegraphic and telex needs have also been included.

b. Installation of 2 sets of radio telephones (with a total of 4 channels) and 4 sets of telegraph transmitters (with a total of 16 channels) is planned for establishing a telecommunication network with Asian and East European countries.

c. It is intended to add 30 telephone and 34 telegraph channels to circuits of the Trans-Iranian microwave system to meet the country's needs in telecommunications with Turkey and Pakistan and to link the Central Asian countries to Eastern and Western Europe networks.

With the execution of these programmes, the number of working hours and the country's direct telephone and telegraph communication with foreign countries will be increased as outlined in Table 8.

Furthermore, adequate circuits will be installed to connect domestic networks with automatic international telephone systems.

13 - POSTAL SERVICE

Programmes provide for the expansion of postal services in provincial capitals and other towns to meet public demand, the establishment of special services such as mail insurance, post office savings accounts, money orders and, finally, the development of postal services in rural areas with a minimum of 100 inhabitants. To achieve this objective, a programme has been drawn up as shown in Table 9.

The other objective of the postal programme consists in speeding up mail distribution so that there will be two daily deliveries in the major cities and one in smaller towns. Moreover, the time taken between mailing at the post office and delivery to addresses will not exceed 5 days anywhere in the country, and 24 hours in the major cities. For this purpose, a programme has been developed as outlined in Table 10.

With the execution of these programmes, the national postal network which exchanged a total of 261.5 million items (10 per capita) at the beginning of the Plan, will be able to exchange 612 million items (20 per capita) at the end. Table 11 shows the volume of postal exchanges.

TABLE 9 — EXPANSION OF POSTAL SERVICES IN FOURTH PLAN

	Number at the beginning of Fourth Plan	Increase in Fourth Plan	Number at the end of Fourth Plan
1. Central postal department in towns	52	8	60
2. Post offices in centres of ostans	170	50	220
3. Rural post offices	875	225	1,100
4. Sub post offices	280	1,720	2,000
5. Mobile posts	5	500	505
6. Public post boxes	12,000	13,000	25,000
7. Private post boxes	35,000	15,000	50,000

TABLE 10 — POSTAL FACILITIES IN FOURTH PLAN

	Number at the beginning of Plan	Increase during Plan	Number at the end of Plan
1. Centre for analysing mechanized postal exchanges	—	5	5
2. Centres for international surface and airmail exchanges	—	6	6
3. Motor vehicles for urban and inter-urban exchanges	40	760	800
4. Vans and other vehicles for distribution	1,500	1,800	3,300

TABLE 11— FORECAST OF THE VOLUME OF POSTAL EXCHANGES (THOUSANDS OF UNITS)

	Domestic		International		
	Ordinary Mail	Registered Mail	Ordinary Mail	Registered Mail	Total
At beginning of Plan	230,000	8,500	22,000	1,000	261,500
At end of Plan	550,000	10,000	50,000	2,000	612,000

14 - RADIO

A programme for the reinforcement of the national radio networks has been drawn up with a view to attaining the following two objectives:

a. To cover all regions of the country on a round-the-clock basis and broadcast Iranian programmes to countries in the Middle East, Central Asia, North Africa and Europe.

b. To increase provincial radio station capacity for broadcasting local programmes and for beaming programmes to neighbouring countries 18 hours daily. By installing transmitters purchased under the Third Plan, and boosting the broadcasting power of the national system from 600 kilowatts to 3540 kilowatts, these targets have been substantially attained. But as for international broadcasts, it is clear that the present national network must be further strengthened in view of the importance of radio transmitters in making Iran and its development achievements better known to foreign countries.

Therefore, with the purchase of a 250-kilowatt short-wave transmitter in the Fourth Plan and the erection of powerful radio masts, the central radio network will be reinforced during the Plan in order to beam programmes to foreign countries.

As for strengthening local radio networks, the 100-kilowatt Ahwaz transmitter will be converted into a 500-kilowatt unit so that it can cover at least the Middle East and North African countries. By the transfer of the 100-kilowatt Ahwaz transmitter to Shiraz and the purchase of two sets of 250-kilowatt medium-wave transmitters for Mashhad, the local transmitters of provincial capitals will be brought up to the new capacity rating, thus ensuring complete regional coverage throughout the country. Moreover, by replacing the one-kilowatt transmitters at Kerman, Sanandaj, Gorgan, Sari and Rezaiyeh with 10-kilowatt units, the broadcasting capacity of the provincial radio stations will be reinforced to cover internal regions. When these programmes are completed, the total broadcasting capacity of the Tehran and provincial transmitters will, as outlined in Table 12, amount to 4,840 kilowatts. A tangible improvement is anticipated in the quality of programmes directed at the following objectives, as a result of the expansion and reinforcement of the national radio networks:

i. publicity on national development affairs from political, social and economic aspects ;

TABLE 12 — TRANSMITTERS TO BE INSTALLED DURING THE FOURTH PLAN (KILOWATTS)

	Location	Type of trans-mitter (wave)	Beginning of Fourth Plan		Increase in Fourth Plan		End of Fourth Plan	
			Number	Total power of trans-mitters	Number	Total power of trans-mitters	Number	Total power of transmitters
1.	Tehran	Short	7	672	1	250	8	922
		Medium	6	2,261	•		6	2,261
		FM	1	10			1	10
2.	Tabriz	Short	2	12.5	—	—	2	12.5
		Medium	1	100	—	—	1	100
3.	Zahedan	Medium	3	111	—	—	3	111
4.	Kermanshah	Medium	3	111	—	—	3	111
5.	Ahwaz	Medium	3	111	••	—	2	11
		Medium	—	—	1	500	1	500
6.	Rasht	Medium	3	111	—	—	3	111
7.	Shiraz	Medium	2	11	••		3	111
8.	Esfahan	Medium	2	11		—	2	11
9.	Mashhad	Medium	2	11	1	500	3	511
10.	Kerman	Medium	1	1	1	10	2	11
11.	Gorgan	Medium	1	1	1	10	2	11
12.	Sanandaj	Medium	1	1	1	10	2	11
13.	Rezaiyeh	Medium	—	—	1	10	1	10
14.	Sari	Medium	—	—	1	10	1	10
	Total		38	3,535.5	8	1,300	46	4,835.5

• Continued erection of 2,000- and 250 kilowatt transmitters and their operation.

100-kilowatt transmitter will be transferred from Ahwaz to Shiraz.

ii. keeping the public informed of current events by broadcasting domestic and foreign news;

iii. strengthening national unity;

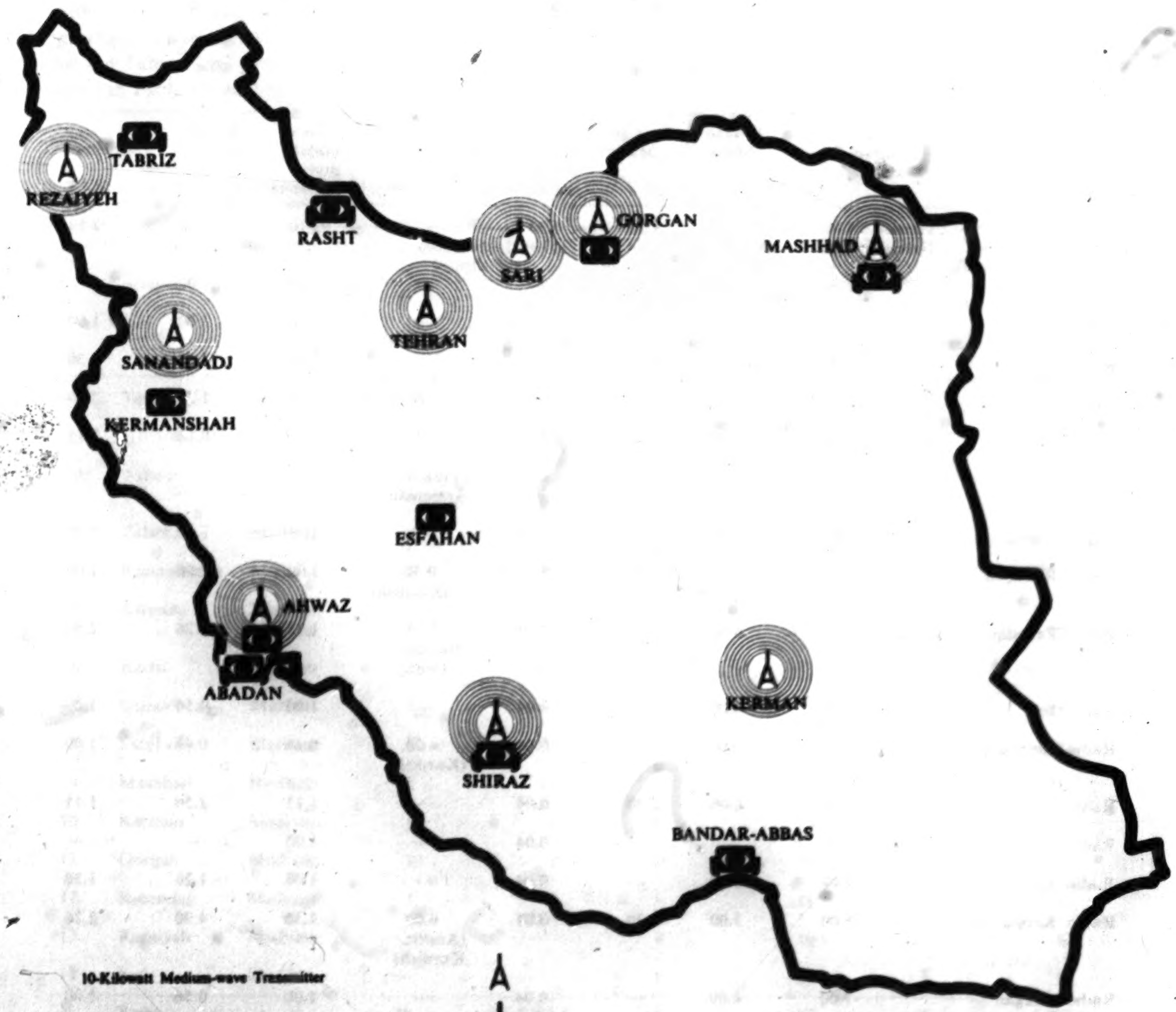
iv. dissemination of culture and fostering of artistic talent;

v. encouraging the public to collect and maintain national and regional artistic works;

TABLE 13 — COMPOSITION OF NATIONAL RADIO PROGRAMMES IN FOURTH PLAN (HOURS AND MINUTES PER DAY)

Transmitter	Total broadcasting	Iranian Music	Foreign Music	Commercial advertisements	Overseas programmes	Educational programmes	Recreational programmes and others	News
Radio Iran	**Home- 24.00**	**6.45**	**3.30**	**0.34**	—	**2.10**	**8.18**	**2.53**
	Foreign- 4.00	—	—	—	**4.00**	—	—	—
Radio Tehran	**12.00**	**1.15**	**8.45**	—	—	**1.00**	**1.00**	—
Radio Abadan	**16.00**	**9.00**	**2.00**	—	—	**1.00**	**3.00**	**1.00**
Radio Esfahan	**10.00**	**5.00**	**0.30**	**0.04**	—	**1.30**	**1.26**	**1.30**
Radio Ahwaz	**18.00**	**3.00**	**1.15**	**0.04**	**7.00 Arabic**	**3.16**	**1.25**	**2.00**
Radio Tabriz	**18.00**	**8.00**	**1.30**	**0.04**	**1.30 (Turkish, Armenian)**	**3.11**	**3.11**	**2.15**
Radio Rasht	**18.00**	**8.30**	**1.30**	**0.04**	—	**1.30**	**3.56**	**2.30**
Radio Rezaiyeh	**8.00**	**4.00**	**0.30**	**0.04**	**0.30 (Kurdish)**	**1.00**	**0.56**	**1.00**
Radio Zahedan	**18.00**	**6.00**	**1.30**	**0.04**	**3.15 (Baluchi, Urdu)**	**1.15**	**3.26**	**2.30**
Radio Sari	**7.00**	**4.00**	—	**0.04**	—	**1.00**	**0.56**	**1.00**
Radio Sanandaj	**8.30**	**2.00**	—	**0.04**	**4.00 (Kurdish)**	**0.45**	**0.41**	**1.00**
Radio Shiraz	**13.00**	**6.00**	**1.30**	**0.04**	—	**1.15**	**2.56**	**1.15**
Radio Ghazvin	**1.00**	—	—	**0.04**	—	**1.00**	—	—
Radio Kerman	**8.00**	**4.00**	—	**0.04**	—	**1.00**	**1.26**	**1.30**
Radio Kermanshah	**18.00**	**3.00**	**0.30**	**0.04**	**6.00 (Arabic, Kurdish)**	**1.30**	**4.30**	**2.26**
Radio Gorgan	**7.00**	**4.00**	—	**0.04**	—	**1.00**	**0.56**	**1.00**
Radio Mashhad	**10.00**	**5.00**	—	**0.04**	—	**1.15**	**2.11**	**1.30**
Total hours	**218.30**	**79.30**	**23**	**1.16**	**26.15**	**22.56**	**40.14**	**25.19**

NEW RADIO AND TELEVISION BROADCASTING CENTRES IN THE FOURTH PLAN


TABRIZ
REZAIYEH
RASHT
SARI
GORGAN
MASHHAD
TEHRAN
SANANDADJ
KERMANSHAH
ESFAHAN
AHWAZ
ABADAN
SHIRAZ
KERMAN
BANDAR-ABBAS
10-Kilowatt Medium-wave Transmitter
100-Kilowatt Medium-wave Transmitter
250-Kilowatt Short-wave Transmitter
500-Kilowatt Medium-wave Transmitter
Television Transmitting Stations
Television Transmitting Station and Producing Centre

vi. development of education and culture by means of educational programmes;

vii. raising the standard of general and specialized knowledge;

viii. entertaining the public by means of musical and recreational programmes;

ix. introducing Iran to foreign countries by means of foreign language broadcasts.

In order to attain these goals, radio programmes should be planned in accordance with the provisions of Table 13.

15 - Television

In view of the importance of television broadcasts in fostering civic awareness, the following programmes have been devised for the expansion of the national television network:

a. Establishment of the National Radio and Television Centre in Tehran to centralize the activities of all production studios, and prepare radio and television programmes for broadcasting by Tehran and provincial stations.

b. Establishment of a television station and programme production centre in Abadan to cover Khuzestan and regions adjacent to the Persian Gulf.

c. Establishment of a television station and programme production centre in Rasht, equipped with a high transmission mast, which will reach a larger area of northern Iran, important from the standpoint of tourism and density of population.

d. In addition to the Rasht and Abadan centres, four other smaller television transmitters and programme production centres have been envisaged for Tabriz, Shiraz and the Persian Gulf region.

e. Under the Fourth Plan, the cities of Esfahan, Ahwaz, Kermanshah and Gorgan will be provided with television transmitters which will not have programme production centres but will broadcast programmes recorded in Tehran and elsewhere.

EXECUTIVE MEASURES

16 - To attain the Fourth Plan targets in this field and to ensure the rapid execution of the programmes described above, the following measures should be taken:

a. In view of the substantial changes scheduled for telecommunication systems and postal and radio services under the Fourth Plan, the following overall re-organization of the agencies affected would appear advisable:

i. Establishment of a telephone and telegraph organization under the supervision of the Ministry of P.T.T. to centralize all nation-wide activities concerning telephones (local, long-distance and international communications) and telegraph services; this organization would have complete financial, administrative and technical independence and operate according to normal business principles under the supervision of its own management.

ii. Centralization of postal activities in an organization under the supervision of the Ministry of P.T.T.

iii. Centralization of activities relating to the operation and maintenance of national radio networks within an organization to function under the supervision of the Ministry of Information.

b. Revision of the present telephone and telegraph tariffs depending on distance, time and utilization at various hours of the day in order to make the utmost use of the direct dialling system.

c. Revision of the present tariffs for international telecommunications on the basis of international negotiations and agreements.

d. Revision of the Iranian Postal Code in line with relevant international agreements. Moreover, the Iranian Post Office will comply with those parts of international protocols which apply to Iranian conditions, and will enter into bilateral or multi-lateral agreements with foreign countries on the basis of the above protocols.

e. Establishment of regulations necessary for the expansion of the commission-receiving system.

f. Adoption of measures to abolish free postal services.

g. Postal codification and classification throughout the country in order to facilitate and expedite the distribution of letters and parcels.

Appropriations under the Fourth Plan

17 - To carry out these programmes, a total allocation of Rials 29 billion will be required, 8,670 million of which will be provided from Iranian Telephone Company resources and 20,300 million from development funds as outlined in Table 14. The funds will be allocated among the various programmes as follows:

a. Local Telephones

The funds needed for the establishment and expansion of automatic telephones under the Fourth Plan are estimated at Rials 12,000 million, to be derived from the following sources:

	(Millions of Rials)
— receipts of applicants' deposits	5,742
— receipts of deposits from public agencies	638
— profits and amortization of Iranian Telephone Company	2,290
— National Development Funds	3,330
Total	12,000

In setting up these estimates, account has been taken of the following factors:

i. The Iranian Telephone Company will be authorized to collect deposits from public agencies (who will be treated like other telephone applicants) as from the beginning of Fourth Plan.

TABLE 14 — CREDITS ALLOCATED FOR VARIOUS TELECOMMUNICATIONS ACTIVITES DURING THE FOURTH PLAN
(MILLIONS OF RIALS)

Activity	From development funds	From funds of Iranian Telephone Company	Total	Percentage of total sector allocations
a — Urban telephones	3,330	8,670	12,000	41.4
b — Telephone and telegraph	11,170	—	11,170	38.6
c — Post	2,700	—	2,700	9.3
d — Radio	1,200	—	1,200	4.2
e — Television	1,900	—	1,900	6.5
Total	20,300	8,670	28,970	100

ii. Since deposits, which form the main source of Iranian Telephone Company investments, are not collected all at once, the amount of Rials 1,049 million, which was made available to the Company under the Third Plan, will still be left at its disposal for the execution of relevant programmes. Allocations for local telephones are shown in Table 15.

TABLE 15 — DISTRIBUTION OF CREDITS FOR LOCAL TELEPHONE SYSTEMS DURING THE FOURTH PLAN (MILLIONS OF RIALS)

Item	Allocations
1 — Procurement and installation of equipment	6,000
2 — Procurement and installation of cables	4,200
3 — Buildings	1,800
Total	12,000

b. Long-Distance and International Telecommunications: A total allocation of Rials 11,170 million has been earmarked for this programme. It is anticipated that of this allocation, Rials 4,030 million will be set aside for the establishment and expansion of the main telecommunication routes, 3,345 million for the establishment and expansion of subsidiary routes, 2,845 million for the provision of automatic telecommunication services and the remaining 950 million for the construction of telecommunication centres and the provision of the necessary equipment (See Table 16).

c - Post

An amount of Rials 2,700 million has been allotted to the expansion and improvement of postal services and related buildings in Tehran and the provinces (Table 16).

TABLE 16 — DISTRIBUTION OF CREDITS FOR INTER-CITY AND INTERNATIONAL TELEPHONE, TELEGRAPH AND POSTAL SERVICES (MILLIONS OF RIALS)

Item	Programme	Credits
1 — Establishment and expansion of main telecommunication routes	— National microwave system	2,700
	— Expansion of Trans-Iranian microwave system	700
	— Establishment of earth station for utilization of satellite telecommunication network and Iranian share of investment in related consortium	550
	— Expansion of radio telecommunication with overseas (HF)	80
2 — Establishment and expansion of subsidiary telecommunication routes	— Establishment of microwave subsidiary lines and underground cables	2,940
	— Erection of overhead lines	300
	— Establishment of domestic communication through HF and VHF wireless systems	105
3 — National automatic telecommunication system	— Establishment of long-distance automatic telephone and local automatic telephone exchanges and communication cables in appointed localities for the purpose of making more effective use of the larger national telecommunication network	2,375

(Continued on next page)

(Table 16 cont.)

Item	Programme	Credits
	— Establishment of automatic telegraph exchanges (Gentex and Telex)	470
4 — Construction of telecommunications centre and installation		950
5 — Expansion and improvement of postal services		1,500
6 — Construction of buildings for postal exchanges in Tehran and provinces		1,200
Total		13,870

TABLE 17 — DISTRIBUTION OF CREDITS FOR RADIO DURING THE FOURTH PLAN (MILLIONS OF RIALS)

	Activity	Credits
1.	Procurement and erection of five 10-kilowatt medium-wave transmitters including transmission masts and generators for Kerman, Sanandaj, Rezaiyeh, Gorgan and Sari radio stations.	50
2.	Procurement and erection of two 250-kilowatt medium-wave transmitters together with transmission masts and generators for Mashhad radio station.	160
3.	Procurement and erection of two 250-kilowatt medium-wave transmitters with transmission masts and generators for Ahwaz radio station.	163
4.	Procurement and erection of one 250-kilowatt short-wave transmitter with transmission masts and generator for Tehran radio station.	83
5.	Continuation of erection of the 250-kilowatt short-wave transmitter in Tehran.	45
6.	Continuation of erection of the 2000-kilowatt medium-wave transmitter in Ghazvin plain.	150
7.	Cost of transfer of transmitters, masts and other expenditure in Tehran and provinces.	240
8.	Purchase of materials for new radio studios.	100
9.	Buildings and equipment:	
	— Procurement of land, construction of buildings and installations for Nos. 1,2,3,4	100
	— Procurement of land, construction of buildings and installations for Information Bureaus in Shiraz, Gorgan, Rezaiyeh, Kerman, Sari, Rasht and Tabriz	99
	— Construction of training centre and provision of equipment in Tehran	10
	Total	1,200

d - Radio

An amount of Rials 1,200 million will be required for the expansion and reinforcement of the country's radio network, the construction of buildings in Tehran and the provinces and the cost of transfer of transmitters (See Table 17).

e - Television

A sum of Rials 1,900 million has been earmarked for the establishment of provincial TV transmitters, including buildings, the purchase of transmitters and installation thereof.

(See Table 18.)

TABLE 18 — ALLOCATIONS TO TELECOMMUNICATIONS SECTOR IN FOURTH PLAN (1347-1351) 1968-1972 (MILLIONS OF RIALS)

	Activities	Allocations
(1) Transmission and Programme Production Centres	— Main centre of Tehran Radio-Television	775.40
	— Tehran centre studios.	142.00
	— Abadan transmission and programme production centre	199.90
	— Rasht transmission and programme production centre	169.60
	— Tabriz transmission and programme production centre	74.80
	— Mashhad transmission and programme production centre	74.80
	— Shiraz transmission and programme production centre	74.80
	— Persian Gulf Region transmission and programme production centre	75.40
(2) Transmission Centres	— Ahwaz Television Centre	54.50
	— Esfahan Television Centre	34.60
	— Kermanshah Television Centre	34.60
	— Gorgan Television Centre	34.60
(3) Relay Centres	— Seven centres (Abadan to Kharg, 3 relay centres in the north, Tehran to Ghazvin, Kermanshah to Hamadan and Shiraz to the north of Shiraz	65.00
(4) Other activities	— Procurement of land	10.00
	— Road building and construction of yards	60.00
	— Design and supervision	20.00
	Total	1900.00

CHAPTER 14

RURAL DEVELOPMENT AND RENOVATION

INTRODUCTION

1 - **Definition** — The term "Rural Development and Renovation" is here used very generally. The implementation of rural development programmes is not only extremely important as regards ensuring social justice and spreading the benefits arising from economic development to the village level, but also for the indirect effects which such implementation will exercise on economic production in making rural areas conducive to a healthier, more active and effective life. All development activities coming under this head may be divided into the following three categories:

a. Activities conducive to increased agricultural production and better living conditions for the rural population. Programmes of this type include activities such as the supply of water for agricultural purposes, the preparation of arable land, the supply of agricultural equipment (since mechanization should be extended as far as possible), the supply of inputs leading to increased production such as fertilizers, the supply of items for the conservation of crops and livestock, the provision of credits, the provision of equipment for animal husbandry, poultry breeding and apiculture, the establishment on commercial lines of agricultural facilities such as special-purpose warehouses, the provision of means for the proper collection and packaging of agricultural produce for market, the establishment of convenient markets for the sale of agricultural produce, the establishment and development of rural industries in villages so as to create new employment, and finally the implementation of land reform programmes and the establishment and expansion of co-operatives, all of which have been outlined in the chapters dealing with agriculture and water.

b. Activities conducive to the development and renovation of rural areas, such as the provision of potable water and water supply systems, the creation of sanitary facilities, environmental sanitation, the provision of facilities for improved living conditions in rural areas, and assistance in housing and community development. These activities constitute the present programme and the objectives, policies and plans relating thereto are given below.

c. Activities conducive to improvements in social affairs at the village level, and training in the various fields required. This programme consists of welfare projects, the establishment of better living conditions and insurance schemes for the rural population, and is dealt with in Chapter Twenty-one (Social Welfare).

PAST PERFORMANCE OF THE PROGRAMME

2 - During the Third Plan, the rural development programme formed part of the agricultural chapter. Under other chapters of the Plan, efforts were also made to extend social services to villages, build feeder roads between villages, carry out sanitary engineering and environmental sanitation projects in rural areas, expand extension and educational services in rural areas, and so on. In spite of these efforts the Third Plan did not have any specific target or comprehensive philosophy in this regard and projects were implemented sporadically and were limited to meeting immediate needs.

3 - The most important measures carried out during the Third Plan period consisted of the following:

a. Construction works and installation of public utilities at the village level, which were carried out by the Ministry of the Interior through Governorates-General, Governorates, and the Department-General of Community Development. A total of 810 projects was executed, including the provision of public bath-houses, schools, mortuaries, and new wells.

b. Construction works, environmental sanitation and village development activities which were undertaken by the Department-General of Health Engineering and the three corps formed in the Revolution, by utilizing the income of village councils and by self-help contributions by the villagers themselves. These included a large number of small projects such as the construction and repair of schools and mortuaries, potable water supply systems, the construction of public bath-houses or conversion of communal bathing pools into individual showers, hygienic public lavatories and sewerage systems.

c. Construction of about 8,700 kilometres of feeder roads, either completed or in progress, by the technical bureaus of the Ministry of Development and Housing and the Ministry of Roads.

d. Construction and community development activities, carried out under the guidance of agricultural extension workers and homemaking supervisors, consisting of 4,500 projects including family hygiene training, exhibitions of rural women's handicrafts, the building of public utilities such as bath-houses, the establishment of vocational courses, and advice to villagers on the use of their leisure time for handicrafts.

e. Activities connected with social reforms in rural areas undertaken by the Department-General of Community Development, which not only resulted in the intellectual growth of rural inhabitants but also in the establishment of 21,890 councils in 32,687 villages.

EVALUTION OF PERFORMANCE

4 - Although the activities carried out have been very effective in the development of rural areas, owing to the shortage of community leaders and specialized personnel they have been insufficient to give satisfactory results in terms of rural renovation. In view of the large farming population in the country, and the fact that the villages are deprived of facilities comparable to those of urban areas, it must be said that the progress achieved has been insignificant. The financial limitations of the public sector and the inadequacy of local resources required for rural development, the scattered distribution of the villages, the large numbers of villages involved, difficulties of access, the uneconomic nature of many development activities resulting from the small volume of population involved, the lack of the necessary executive agencies at the village level, and the absence of co-ordination among responsible bodies working in villages have been some of the problems which the Rural Development Programme has had to face during the Third Plan.

OBJECTIVES AND SPECIFIC PROGRAMMES OF RURAL DEVELOPMENT DURING THE FOURTH PLAN PERIOD

5 - The general objectives of this programme consist of the extension of social justice and distribution of the benefits of economic growth among the rural population through village development, the establishment of public utilities, ensuring the welfare of the rural population, and preparing villages to cope with rapid economic changes and development.

6 - The specific objectives of this programme consist of village development and improvements in the living conditions of the rural population, environmental sanitation, facilitating family life and village renovation by means of the following measures:

a. encouraging villagers to participate in team-work, individual investments, application of self-help and do-it-yourself principles, and establishing a feeling of confidence among farmers to participate in public affairs by developing and strengthening village councils;

b. granting technical and financial assistance to villagers for the establishment of public utilities, for community development projects and the improvement of living conditions in rural areas;

c. guidance to village councils regarding proper methods of administration and training them in administrative methods and the proper use of public utilities;

d. renovation of villages in agricultural centres.

7 - In the light of the foregoing objectives, the programme for rural development will consist of the provision of potable water and water supply systems, the construction of bath-houses, mortuaries, model homes, the granting of housing loans to villagers, sanitary measures, the provision of public utilities in villages,

and other activities aimed at improving living conditions. These measures will be taken in accordance with special demographic and socio-economic criteria and in conjunction with the self-help activities of the villages themselves. The programme will also include the renovation of villages in regions and agricultural centres where favourable conditions for economic development exist.

8 - In addition to credits allocated under this chapter for the realization of the above targets, allocations have also been made under other chapters for construction works and facilities in rural areas.

POLICIES AND EXECUTIVE MEASURES

9 - In order to eliminate bottlenecks arising from the lack of co-ordination between the rural development activities of various Government agencies, a decree was issued by the Council of Ministers in Khordad 1346 which provided for the formation of councils to coordinate rural development activity at the provincial and rural district level. Suggestions were also made to centralize and integrate all existing agencies into a single organization.

Since the councils and consultative bodies are unable to solve the problems facing officials in the execution of programmes, in order to ensure the proper implementation of the rural development and renovation programme, the executive activities of this programme must be centralized in one organization and the existing staff and facilities of various agencies which are at present used haphazardly and individually in the implementation of the programme must be made available to this organization, which will assume responsibility for the execution of the programme.

10 - A further policy is the establishment of village councils where none exist at present. Council members will also receive training so as to be able to conduct sessions and collect revenues in a proper manner.

11 - Other policies of the programme consist of the preparation of criteria, regulations and directives aimed at:

— selecting villages where community development programmes and projects are to be implemented;
— determining the level of self-help contributions with due regard for conditions in various regions of the country, and the per capita income of the population;
— establishing, maintaining and operating public utilities in villages.

12 - While attempts will be made to collect the tax for village development, studies will be carried out on the feasibility of raising the rate of this tax from its present level of two per cent so as to ensure greater financial resources.

13 - Standards and models for sanitary installations and standardized designs and technical specifications for rural houses will be prepared at the start of the Fourth Plan, with due consideration for conditions in different regions of the country.

14 - Distribution of development credits. According to estimates, the contribution of the public sector in the execution of the programme has been put at two-thirds and that of the local self-help contributions at one third. The distribution of village development credits by type of activity will be as shown in Table 1.

In addition to the amount of Rials 7 billion shown in Table 1, which will be allocated on village development activities from development funds, there will be other allocations, exceeding Rials 11 billion, from various chapters of the Plan such as Health, Social Welfare, Communications, Agriculture, Education and Electricity, which will be utilized on construction and the establishment of fixed assets.

TABLE 1 — DEVELOPMENT CREDITS FOR RURAL DEVELOPMENT AND RENOVATION (MILLIONS OF RIALS)

Title	From development credits	Contribution of villages	Total
1. Provision of potable water	3,500	1,475	4,975
2. Rural health facilities	3,300	1,540	4,840
3. Environmental sanitation and rural housing	1,300	1,300	2,600
4. Construction of model houses and housing loans	1,000	—	1,000
Total	9,100	4,315	13,415

N.B. The personnel and administrative overheads of executing agencies will be included in the current Government budget within acceptable limits for annual requirements.

CHAPTER 15

URBAN DEVELOPMENT

INTRODUCTION

1 - Public demand for urban living and the rapid increase of the urban population, which is a normal result of economic and industrial growth, have faced the nation with the important problem of meeting general urban requirements.

The natural increase in population, the drift from the land, and from low-income towns to larger cities, to seek employment and a better life and the industrial evolution that has taken place in Iran in recent years, have resulted in heavy increases in the density of population in parts of large cities, and the creation of shortcomings in urban facilities and services, and hence the emergence of problems such as housing shortages, and the creation of slums. Rapid changes in the quantity and quality of transport and easier access to different regions and localities have in turn caused greater complexity in urban life.

Since it is difficult to solve all such problems within the framework of haphazard urban projects, ways must be found to solve these problems within the general framework of comprehensive master plans based on the principles of town planning principles and in co-ordination with social and economic development plans.

PAST PERFORMANCE OF THE SECTOR

2 - During the Second and Third Development Plans, attention was paid to urban development programmes in order to meet the social needs of urban areas in a substantive manner, but this not only failed to alleviate the need of towns for continued aid but actually intensified this need. The measures of the Third Plan designed to help create urban facilities have been as follows:

— continuation and completion of unfinished Second Plan projects, extension of grants and loans for the implementation of new projects, contribution to the improvement of municipality affairs and providing them with necessary equipment.

In the Third Plan, priority was given to projects in the following order: water, electricity, housing, hygiene, safety and street-surfacing. Towns were classified in four groups, with due regard to the extent of their needs, and poorer towns benefited from more advantageous loans and larger grants.

Among the many changes brought about during Third Plan period was the transfer of executive affairs related to urban development from Plan Organization, which had hitherto been responsible, to the newly established Ministry of Development and Housing.

During the Third Plan period, 662 projects were approved in all, 305 of which were completed by the end of 1345, and another 138 of which will reach the stage of implementation by the end of the Third Plan, while the implementation of the remaining 219 projects will be deferred to the Fourth Plan. Table 1 gives details of the various types of urban development projects, and shows whether they were completed during the Third Plan or deferred till the Fourth Plan.

3 - During the Third Plan, proposals were made for the first time regarding the need to prepare master plans and forecasts for the co-ordination of expansion of urban infrastructure within a rational framework. These proposals, however, proved to be very general, and detailed principles and specifications relating to these master plans were not drawn up. During the Third Plan period, a council, entitled the High Council for Town Planning, was established in the Ministry of Development and Housing, to adopt general policies for town planning, co-ordinate and centralize studies relating to the preparation of town planning regulations and approve master plans for towns. During the Third Plan period, measures were also taken to prepare master

TABLE 1 — SUMMARY OF EXECUTION STATUS OF THIRD PLAN URBAN DEVELOPMENT PROJECTS

	Type of project	Number of projects			
		Approved	Completed	In progress	Not started
1.	Potable water supply	340	146	53	141
2.	Street surfacing and construction	133	65	46	22
3.	Public laundries	23	12	6	5
4.	Sewerage	7	3	3	1
5.	Public lavatories	4	1	1	2
6.	Mortuaries	21	13	4	4
7.	Public parks	2	0	2	0
8.	Slaughterhouses	17	2	4	11
9.	Public baths	46	21	5	20
10.	Studies, preparation of projects and supervision	15	12	2	1
11.	Miscellaneous sanitary projects	10	6	3	1
12.	Flood controls	13	6	3	4
13.	Construction and repair of bridges	6	4	0	2
14.	Flood diversion	7	4	3	0
15.	Riparian walls	9	6	3	0
16.	Fire fighting	8	3	0	5
17.	Surveys for safety projects	1	1	0	0
	Total	662	305	138	219

plans for Tehran and 16 other towns, some of which have already been approved. In addition to these projects, priorities for the preparation of master plans for another nine towns have been approved by the High Council for Town Planning, and work has started on the preparation of these. Table 2 lists the towns for which master plans are being prepared.

4 - Another important measure taken during the Third Plan period has been the training of technical and administrative municipal staff. To train technical staff, courses at a post secondary education level have been established by Plan Organization in the Faculty of Engineering and the Tehran Polytechnic while efforts were made by the Iran Municipal Association to train administrative, financial and similar staff for municipalities which do not yet meet national requirements.

5 - The major problems of the Third Plan urban development programme may be listed as follows:

a. Problems arising from changes brought about in methods and procedures relating to urban development, and also the transfer of functions from the Plan Organization to the Ministry of Development and Housing.

TABLE 2 — LIST OF TOWNS FOR WHICH CONTRACTS HAVE BEEN SIGNED DURING THE THIRD PLAN FOR PREPARATION OF MASTER PLANS

Name of town	Date of signature of contract with town planning engineers	Contract period (months)	
		Phase one	Phase two
Tehran	10/11/44	12	12
Ahwaz	10/12/44	Delivered	Delivered
Bandar Abbas-Bandar Lengeh	10/12/44	Delivered	Delivered
Babol-Babolsar	16/12/44	9	6
Rasht-Bandar Pahlavi	25/11/44	7	10
Tabriz	7/ 2/45	12	8
Chalus-Nowshahr	15/11/44	5	4
Karaj	10/11/44	8	6
Ghazvin	25/12/44	4	6
Sar Bandar	23/ 3/45	8	8
Hamadan	9/12/44	8	4
Shiraz	23/11/44	12	12
Regional tourist project for Caspian Sea area	29/ 9/45	3	3
Esfahan	2/ 2/46	12	12

b. The transfer of certain executive functions of the urban development programme to technical bureaus in provinces and governorates which were inadequately prepared to assume such functions, and problems relating to the small and scattered nature of projects in various parts of the country which created various difficulties for consulting engineers and contractors, as well as the lack of experience of the consulting engineers and contractors themselves.

c. The lack of preparedness on the part of municipalities in making preliminary arrangements, signing contracts, provision for and payment of their own share of project costs, and the weakness of administrative, financial and technical staff in co-operating in the starting and continuation of executive work.

d. The lack or weakness of local technical staff capable of administrating, maintaining and operating new urban facilities.

e. As regards master plans, the limited number of specialized and experienced consulting engineers in urban development, the lack of proper statistics and data concerning towns, the absence of concrete regional development policies at the national level, the failure to determine how to implement comprehensive projects in the form of specific executive projects, and the lack of performance guarantees.

GENERAL OBJECTIVES OF FOURTH URBAN DEVELOPMENT PLAN

6 - The general objectives of Fourth Urban Development Plan include the continuation and completion of unfinished Third Plan activities, providing for the growing development needs of cities within the frame-

work of master plans, with special emphasis on regional development requirements, and will consist of supplying municipalities with trained personnel, improving their organization, financial and administrative methods, expanding training for this purpose, and upgrading town planning staff and technical management required for urban facilities.

SPECIFIC OBJECTIVES

7 - The specific objectives of the Fourth Urban Development Plan may be summarized as follows:

a. Strengthening of municipalities by means of:

i. establishing one main and 12 subsidiary training centres in order to train existing and new administrative and technical staff of municipalities, and provision of training staff for these centres;

ii. improving the employment status of municipal workers, applying the new employment regulations for municipalities, helping provide technical staff required by municipal technical bureaus in provincial and rural district centres;

iii. improving financial and administrative procedures in municipalities.

b. Urban development by means of:

i. continuing the execution of urban development projects in progress;

ii. installing water supply systems in towns where such facilities are not yet available;

iii. expanding existing water supply systems;

iv. providing sewerage systems in towns where such facilities are essential, with due regard for priorities;

v. implementing safety projects (flood control and fire-fighting facilities) as required.

c. Preparation of urban master plans, projects and related executive regulations, as follows:

i. preparation by the High Council for Town Planning of master plans for major cities, with due regard for priorities and the economic conditions of the towns concerned;

ii. preparation, by technical bureaus of municipalities in provincial centres, of guide maps for small towns and executive projects of master plans in the case of large cities;

iii. strengthening of higher education in the field of town planning;

iv. strengthening the High Council for Town Planning and the secretariat of the Council so that it can propose and approve town planning regulations and exercise better supervision of projects in co-operation with the Ministry of the Interior.

POLICIES AND EXECUTIVE MEASURES

8 - The following policies have been provided to improve and strengthen municipalities:

a. The establishment of a well-equipped organizational unit within the Ministry of Interior to study such matters as recruitment and job classification in municipalities on a regular basis, and to standardize employment procedures in all municipalities in the country.

b. To strengthen administrative and financial machinery and to expand the financial resources of municipalities by means of the following:

i. the establishment of procedures for levying charges on buildings and plots of land located within town limits on the basis of their value, and of proper methods for fixing and collecting such charges, and methods for keeping and spending the proceeds therefrom in such a way that the income of municipalities is adequately increased, properly collected and spent;

ii. the establishment of proper operational and financial standards for the administration and operation of municipal utilities, particularly water, sewerage and power systems, so that the revenue from these utilities defrays the expenses of operating and developing them;

iii. improved procedures relating to budgeting, procurement, estate management, accounting and auditing in municipalities in accordance with modern methods, by making use of the experience gained by the country's advanced administrative agencies, strengthening of the Iran Municipal Association so that it can help and advise on the improvement of municipal administrative procedures and services.

c. To establish and mobilize technical and planning units in important municipalities so that their current measures are based on properly researched plans and projects.

d. To strengthen and mobilize technical bureaus of municipalities in provincial and rural district centres, especially so that technical services required for small development projects, are made available, including the preparation or execution of projects to be carried out directly by municipalities, the preparation of guide-maps, especially for small towns, and specific executive projects forming part of the master plans of large cities.

9 - The policies and executive measures relating to the provision of urban facilities and town development are as follows:

a. In the case of projects in progress the general principle will be that commitments arising from such projects, as well as from projects of which the contracts have been concluded with municipalities, should be executed with the same standards and criteria that prevailed in the Third Plan. Nevertheless, in cases which are quite inconsistent with the policies of the Fourth Plan appropriate changes may be made in projects in conformity with such policies.

b. In the case of new projects, the policy of the Fourth Plan will consist of the establishment of an Urban Development Fund for the granting of loans to municipalities and the centralization of credit matters related to urban development. The principles and procedures of the Fund will be as follows:

i. The major functions of the Urban Development Fund will consist of the extension of long-term low-interest loans to municipalities for the provision of urban facilities with due regard for the priority of certain projects as provided for in the regulations of the Fund.

ii. The collection of instalments of loans granted during previous Plans from national development funds. In this connection it has been arranged that as from the beginning of 1347 repayments to Plan Organization on the part of municipalities for loans made during the Second and Third Plans will be made available to the Urban Development Fund and will form its capital or revolving fund, for the granting of new loans.

iii. The proceeds of charges in substitution for the former octroi tax, and other taxes which are presently collected in Tehran by the Ministry of Interior will be made available to the Fund.

iv. The Urban Development Fund, in granting credits to municipalities, will oblige them to use the services of consulting engineers and contractors of proven competence, and will exercise general supervision in this respect.

v. The Fund will act as a specialized credit institution in the allocation of funds, and will conduct the necessary feasibility surveys of urban development projects, allowing for amortization, servicing of loans and other relevant matters.

c. Procedures for the payment of outright grants for the construction of urban facilities — the principles governing the executive regulations pertaining to the procedures for the payment of grants and loans to municipalities shall be as follows:

i. The payment of outright grants for the construction of urban facilities in the Fourth Plan will be limited, according to special regulations to be prepared, to the main contracts of water supply and sewerage systems and other basic facilities which are considered essential to every town but too costly for municipalities to provide from their own financial resources.

ii. The percentage of outright grants may be determined by consideration of various elements, such as the income of the municipality concerned in relation to the population of the town, the per capita income of the population, the total cost of implementing the project, and finally whether previous grants have been made or not.

iii. The basic purpose of establishing urban facilities is that local resources should be mobilized as far as possible, and that the public should participate in the cost of basic urban facilities.

iv. Grants will be paid to municipalities through the Urban Development Fund.

10 - Policies relating to the preparation of master plans for towns may be summarized as follows:

a. In view of the ambiguity which has hitherto existed in connection with the concept and composition of master plans, the preparation of such master plans in the Fourth Plan will be based on the following principles:

i. In the first phase of studies for the preparation of master plans, a clear and detailed picture of the population characteristics, economic activities and per capita income, housing situation, traffic, land utilization and distribution of population in buildings, areas and regions of the town (both in the past and at present) should be prepared, and these studies should form the basis on which the long-term master plan is prepared.

ii. In the second phase, master plans for town development should form the main basis for the preparation of short-term programmes, and all municipal activities and measures should conform to them.

iii. The preparation of master plans requires the co-operation of specialists in different branches of science and technology, such as geographers, demographers, economists and other technical experts. When executive regulations are being prepared consultations with jurists will also be necessary.

b. In selecting towns for which master plans are to be prepared, priority should be given to towns which have high population growth rates and which are considered as future development poles in regional development programmes.

c. In order to execute such master plans and related technical projects properly, all legal bottlenecks will have to be removed by the enactment of a town planning law and the approval of relevant regulations. The Ministry of Interior will make town councils, and in their absence mayors, responsible for the observance of master plans and implementation thereof within the limits of their authority, and will make the necessary arrangements for the observance of building standards, city districts, land utilization and the provision of passages, squares, green areas, parks and other open spaces.

DISTRIBUTION OF DEVELOPMENT CREDITS

11 - The distribution of development credits among the three principal urban development programmes will be as shown in Table 3, and details of each programme are given in Tables 4, 5 and 6.

TABLE 3 — DISTRIBUTION OF DEVELOPMENT CREDITS AMONG THREE MAJOR PROGRAMMES OF URBAN DEVELOPMENT (MILLIONS OF RIALS)

Title	From municipal revenues and special income of Ministry of Interior	From Fourth Plan development credits	Total
1. Training and improved management of municipal affairs	480	400	880
2. Construction and completion of urban development facilities	10,200	6,150	16,350 (1)
3. Town master plans	—	450	450
Total	10,680	7,000	17,680

(1). From this amount, Rials 2,650 million will be allocated as capital for the Urban Development Fund, of which Rials 1,000 million will be provided from the development budget, Rials 1,000 million from municipal revenues and the special income of the Ministry of Interior and Rials 650 million will be in the form of a Plan Organization loan.

Detailed description of above allocations are given in Tables 4, 5 and 6.

TABLE 4 — DISTRIBUTION OF CREDITS FOR IMPROVED ADMINISTRATION OF MUNICIPAL AFFAIRS (MILLIONS OF RIALS)

Description of programme	From development budget	From Ministry of Interior budget	Total
1. Training of personnel for municipalities and standardization of employment procedures in municipalities	50	25	75
2. Establishing a system for levying charges on buildings and land in provincial and district centres and towns of more than 30,000 population	290	75	365
3. Establishing and equipping technical bureaus in municipalities in provincial and district centres	50	370	420
4. Providing for initial expenditure for establishing the Urban Development Fund	10	10	20
Total	400	480	880

TABLE 5 — DISTRIBUTION OF CREDITS FOR PROVISION OF URBAN DEVELOPMENT FACILITIES (MILLIONS OF RIALS)

	Description of programme	From development budget	From municipal revenue and private investment	From special revenues of Ministry of Interior	Total
1.	Third Plan commitments transferred to Fourth Plan	3,000	1,600	—	4,600
2.	Providing for Urban Development Fund capital	1,000	500	500	2,000
3.	Investment in the form of Plan Organization loan to Urban Development Fund	650	—	—	650
4.	Investment in the form of Plan Organization grants	1,500	—	—	1,500
5.	Direct investment by municipalities	—	7,000	—	7,000
6.	Investment by other agencies and individuals in urban development activities	—	600	—	600
	Total	6,150	9,700	500	16,350

TABLE 6 — DISTRIBUTION OF CREDITS FOR PREPARATION OF TOWN MASTER PLANS (MILLIONS OF RIALS)

	Description	Credits allocated
1.	Preparation of master plans for 46 towns	200
2.	Cost of survey and printing of maps of existing situation of towns	50
3.	Completion and strengthening of High Council for Town Planning and contribution to costs of training town planning personnel	50
4.	Other expenditure including commitments transferred from the Third Plan	150
	Total	450

CHAPTER 16

CONSTRUCTION AND HOUSING

Introduction

1 - The expansion of construction activity is one of the main features of economic development. Parallel with industrialization and urban development, construction activity takes place in order to meet administrative, industrial, sanitary, educational, housing and similar needs. Such activity not only meets social requirements, but also plays an important role in the activation of the economy of any country.

In Iran, the construction sector accounts for about six per cent of Gross National Product. It is also one of the most labour-intensive sectors of the economy. In 1346 for example, about 499 thousand people were engaged in construction. The connection between construction activity and construction industries, and their dependence on the credit activities of banks, are such that fluctuations may have a substantial effect on a recession or boom in the country's overall economy. During the last 10 years, an unprecedented dynamism has been observed in the activities of the private sector in the field of construction. It seems that with Government encouragement large resources will be made available by the mobilization of private savings in order to solve construction problems in general, and the housing problem in particular.

Among various kinds of construction activity housing is of special urgency and importance. In addition to its direct and indirect bearings on economic development, if a policy is adopted of emphasizing the provision of low-cost housing, housing may serve to propagate social justice and reduce the relative gap between various classes of society.

2 - There are numerous problems facing construction and housing in Iran. Most Government and service agencies occupy rented premises which are far from suitable for their type of activity. In the case of housing, problems include the failure to observe housing standards, to provide essential facilities inside houses or social amenities and public utilities in residential areas, the shortage of low-cost housing for low-income groups, the failure of the pace of construction to keep up with the rapid growth of population, high rents and construction costs, the inconsistency of housing with overall town planning and finally the absence of special criteria in this field. It must however be noted that the existence of these problems is due in the first instance to the limitations of economic growth, and the low per capita income. A basic improvement in the state of housing will only occur when the incomes of various social groups rise as a result of the expansion of productive activity. Over-emphasis on housing cannot therefore be regarded as a basic remedy for promoting the level of their income although it may result in an apparent improvement in living standards. In any event, it must be admitted that even under the present social and economic conditions of Iran, not all the available potential is being utilized to solve the housing problems, and there is still ample opportunity for extensive and effective measures in this field.

Performance of the sector during the Third Plan period

3 - The basic objective of Third Plan as regards Government buildings was to meet some of the requirements of Government agencies for buildings, and as regards housing to construct low-cost housing for low-income groups. With regard to the latter the target was purely qualitative in nature and in terms of quantity the number of houses to be built for these groups was not specified, but deferred pending the collection of the necessary information and data relating to this category of housing. During the Third Plan period, a survey was begun to investigate the status of housing in Iran so as to co-ordinate the haphazard activities of public and private agencies in this field. Attention was also paid to the question of providing housing for Government employees, slum-clearance and aid to the private sector for housing projects.

4 - The policies of the Third Plan were as follows:

a. proper supervision of all activities concerning housing and the adoption of an overall housing policy;

b. the preparation of an inventory of housing requirements throughout the country and determining to what extent they could be met during the Third Plan;

c. the preparation of a financial plan, including long-term loans, to meet the costs of private home construction;

d. the establishment of training courses for skilled construction workers and for all individuals interested in building their own homes;

e. the expansion of self-help measures related to housing and by minor Government assistance in such fields as making construction materials available at cost price;

f. the reform of laws related to housing.

5 - It is worth mentioning that in the Third Plan frame, no special chapter was at first envisaged for housing, but as from the beginning of the Plan, various uncoordinated projects were proposed by different agencies and approved by Plan Organization, and on this basis a new chapter entitled "Housing and Construction" was added. In 1343, a law was enacted to establish a Ministry of Development and Housing in accordance with which the Housing Organization of the Ministry of Finance, and the construction departments of other Ministries, were dissolved, and responsibility for the implementation of construction projects was transferred to the Ministry of Development and Housing, and most of these projects have been or are being implemented by the Ministry.

6 - Performance and appraisal of the sector during the Third Plan

At the start of the Third Plan, particular attention was paid to the problem of construction and housing, and the provision of the minimum requirements for urban housing, and the construction of office buildings according to proper methods and standards, allowing for the special conditions of Iran, were adopted as objectives. Although the first years of the Third Plan coincided with the economic recession, the increase of allocations to this Chapter, to the amount of Rials 13.5 billion, played a major role in eliminating the recession. As a result, the construction needs of Government agencies were partly met by the implementation of 48 projects, while the construction of 2,973 one-room to seven-room housing units helped to meet the needs of Government employees for housing. Moreover a number of 4,320 units of low-cost housing were constructed and 10,000 other units were constructed from the same allocation. In addition, through the granting of loans and encouragement of private investments during the Third Plan, approximately 200,000 housing units were built by the private sector. In the execution of projects related to institutional staff housing, certain problems arose such as the determination and methods of collection of rents, existing claims to land ownership, unsuitability of location, poor communications with towns, the shortage and in some cases the high price of urban facilities, and the maintenance of such houses.

A study of the loans made by Bank Rahni Iran (the Mortgage Bank of Iran) shows that the average amount of housing loans was not very high and therefore no tangible improvement in terms of the quality of housing in Iran has been achieved. By contrast, the average amount of loans granted by the Housing Savings Fund is higher than that of other loans.

In general, during the Third Plan, measures were taken to provide for housing by granting housing loans from Bank Rahni Iran credits and by building low-cost houses and housing estates. Although numerous financial, economic, human, social, legal, technical and administrative difficulties are involved in such estates, many of them can be solved by the implementation of careful social and economic studies.

As regards Government buildings, the major problem lies in the degree of priority of some constructed premises. Some of these buildings are constructed in a luxurious manner that is often quite incompatible with the level of work and the type of administrative services provided.

The present housing situation

7 - The censuses conducted in 1335 and 1345 show that during this ten-year period the urban population increased by about 4.4 million and the rural population by about 2.2 million. The rapid increase of population in urban regions, particularly in large cities,has aggravated the housing shortage problem. Large cities are faced not only with a physical shortage of housing, but also with problems of quality, as most existing houses do not come up to standard. In rural areas, the housing situation is still unsatisfactory, and no basic improvements have yet been achieved.

8 - In recent years, the incomes of workers, farmers and the middle classes have constantly risen as a result of the execution of the Development Plans. Parallel with this growth of incomes, educational levels have also risen and there has been a trend towards urban living, which has not only resulted in increased demand for housing, but also in the quality of housing required. Statistics for the past decade show a growing inclination to build individual houses in Iran, whereas there has been no marked increase in the inclination towards collective housing projects. The rate of individual houses to total accommodation in urban areas is about 69.2 per cent, and in rural areas it is about 86.3 per cent. In recent years, about three quarters of all housing constructed has been in the form of one-storey buildings. The prevalence of individual dwellings and their scattered distribution not only augment the cost of providing urban facilities, but also cause a disproportionate horizontal expansion of towns which creates difficulties in the administration of urban affairs. It must also be mentioned that,in general,because of the difficulties facing the mobilization of small savings for investment in productive fields, the construction of private houses is in fact considered the safest means of maintaining the value of savings, so much so that out of the total investment by the private sector in the period 1338-1344 about 76 per cent was spent on construction and housing.

9 - It is also interesting to note that the major part of the private sector's investment in construction has been provided for out of the special resources of the sector and by utilizing the credits of the non-organized money market, while banking credits only covered 12 per cent of total investment. There is therefore ample room for the banking system to expand its activities in this field.

10 - In spite of the importance of investment by the private sector in housing during recent years, and the fact that on average 47,000 new houses have been built each year in Iranian cities (in 1344 the figure was as high as 65,000 while the average number of rooms in each home rose from 1.8 in 1337 to 1.9 in 1342 and 2.3 in 1345) the housing situation in Iran still leaves much to be desired. Approximately 40 per cent of urban families live in one room, and 30 per cent in two rooms. There are many sub-standard houses throughout the country, whereas very luxurious houses, which do not conform to living conditions in Iran, are also to be seen, especially in large cities. Equally, the relationship between housing and town planning is unsatisfactory. City limits are not determined, housing standards are ignored and not all the construction materials required are produced in the country.

General objectives of the Fourth Plan

11 - In view of the projection of an increase in the urban population during the Fourth Plan period of 2.5 million, the objective of the Plan as regards the provision of housing consists of constructing 110 new housing units for each thousand additional population, in other words approximately 275,000 new housing units, of which 250,000 units will be constructed by the private sector and 25,000 by the public sector. These figures do not include housing in the main industrial sectors, such as the oil, steel, petrochemical and other heavy industries, nor in major agricultural projects and in rural areas, each of which are provided for in their own programme and are carried out directly by the appropriate agencies. It is envisaged that by the end of the Fourth Plan the number of rooms in each housing unit will increase to 2.5, thus achieving a qualitative improvement in housing.

12 - Another objective will include providing for the requirements of Government agencies, particularly those of the Armed Forces and law-enforcement agencies regarding suitable administrative buildings.

Specific programmes

13 - The specific programmes of housing and construction will be as follows:

a. Government buildings

i. the fulfilment of commitments and continuation of construction activity started during the Third Plan, as shown in Table 1;

ii. the provision of new administrative buildings, as shown in Table 2;

iii. the execution of certain Government construction projects by means of direct investment by the Housing Organization and undertakings to pay from the current budget. These projects consist of a headquarters building for international conferences in Tehran, buildings for agencies affiliated to the Ministry of Development and Housing in provincial towns, a building for the Organization for Administrative Affairs as well as a headquarters building for the Iran Statistics Centre;

iv. the encouragement of investment by the private sector in providing for Government buildings required and guaranteeing the rent thereof from the Government over a long period;

b. Housing

i. increasing the capital of Bank Rahni Iran by Rials 1.4 billion for the purpose of making loans to the private sector, and encouraging the private sector to invest in housing activity. As a result of this type of loan, and also by utilizing private resources, it is envisaged that approximately 250,000 housing units will be constructed by the private sector during the Fourth Plan;

ii. Allocation of credits through Bank Rahni Iran, on a project basis, for the granting of loans to large industrial units so as to build about 10,000 houses for workers in the vicinity of private factories. Credits for the construction of houses for workers engaged in publicly-owned industry have been provided for in the projects concerned;

iii. Granting of loans, on a project basis, to private companies and groups, through Bank Rahni Iran, in

TABLE 1 — COMMITMENTS AND CONTINUATION OF GOVERNMENT CONSTRUCTION ACTIVITIES TRANSFERRED FROM THE THIRD PLAN TO THE FOURTH PLAN*
(MILLIONS OF RIALS)

Description of project		Total credits allocated
1.	Rudaki Hall	70
2.	Ministry of Education headquarters building	100
3.	Farahabad Palace	1,500
4.	Gendarmarie posts	30
5.	Ministry of Agriculture headquarters building	100
6.	Ministry of Labour and Social Affairs headquarters building	10
** 7.	Completion of other unfinished Government buildings	500
	Total	2,310

* These figures are purely estimates and will not be taken as bases for the approval of future projects.

** This item consists of 22 projects which were integrated into two projects (Nos. 0112 and 0113) during the Third Plan period.

TABLE 2 — NEW GOVERNMENT BUILDINGS IN THE FOURTH PLAN (MILLIONS OF RIALS)

Description of project	Total credits allocated
1. Construction of 84 buildings for the State Security and Intelligence Organization	450
2. Construction of a detention centre for political prisoners	60
3. Construction of a centre for international conferences in Tehran	500
4. Construction of a Pahlavi Library building	60
5. Construction of buildings required by the Armed Forces	11,000
6. Construction of 200 office buildings for district governors	250
7. Construction of office buildings for Governors-General of Esfahan, Kermanshah, Baluchestan and Kerman	30
8. Construction of 85 office buildings for governors	170
9. Construction of headquarters building for the Ministry of Roads	120
10. Construction of headquarters building for the Ministry of Water and Power	120
11. Construction of a Conscription Centre	50
12. Construction of buildings for new ministries	80
13. Construction of a Civil Registration Centre	25
14. New State Police Administration prisons	150
15. Other Government buildings	732
Total	13,797

order to encourage them to build suitable houses for Government officials;

iv. Allocation of credits through Bank Rahni Iran, on a project basis, to private companies and groups for the purpose of building schools;

v. Allocation of credits through Bank Rahni Iran, on a project basis, to private companies and groups in order to assist in constructing some of the buildings required by the Government; (See Table 3.)

vi. Construction of institutional housing, particularly in border areas or in regions lacking habitable dwellings, and also housing projects for the personnel of law-enforcement agencies, in all approximately 8,000 units; (See Table 4.)

vii. Construction of low-cost housing for the poor and low income groups, particularly in certain areas such as the south of Iran. and also slum-clearance. Under this programme, provision has been made for the construction of about 3,000 low-cost houses and 3,000 houses for slum-dwellers; (See Table 4.)

14 - Construction projects relating to specific programmes, such as the construction of hotels and touristic facilities, schools and training centres, hospitals, clinics and health centres, social and cultural buildings in rural areas and other multi-purpose social services centres, and buildings required in industrial, communications, agricultural and irrigation programmes.

TABLE 3 — DISTRIBUTION OF CREDITS TO BE MADE AVAILABLE TO BANK RAHNI IRAN IN THE FOURTH PLAN (MILLIONS OF RIALS)

	Description of project	Total credits allocated
1.	Increase in capital of Bank Rahni Iran	1,400
2.	Granting of credits on a project basis for loans to large industrial units for the construction of workers' homes	500
3.	Granting of credits on a project basis for loans to individuals or companies for housing projects	600
4.	Granting of credits on a project basis for loans to individuals or companies for the construction of Government buildings	100
5.	Granting of credits on a project basis for loans to individuals or companies for the construction of school buildings	300
	Total	2,900

TABLE 4 — PUBLIC SECTOR HOUSING PROJECTS IN THE FOURTH PLAN (MILLIONS OF RIALS)

	Description of project	Total credits allocated
	a. Institutional housing	
1.	Construction of 761 units in border areas	536
2.	Construction of 729 units in regions where there is no potential for private investment	510
3.	Construction of 812 units in hardship regions and for State Gendarmerie personnel	516
4.	Construction of 5,022 units for State Police personnel	1,798
	Total	3,360
	b. Low-cost housing	
1.	Construction of 70 units at Persepolis	33
2.	Construction of 700 units at Sar Bandar	100
3.	Slum replacement housing	500
	Total	633
	Grand Total	3,993

Executive policies

15 - Executive policies in the field of housing are as follows:

a. to create favourable conditions for the encouragement of private investment in housing by strengthening savings funds and housing loan funds, and other credit institutions, and by contributing to groups and companies investing in housing in accordance with specific criteria;

b. to provide the means for industrialists to build houses for their workers;

c. to give priority in public investment for building low-cost houses for low-income groups, and slum-clearance in large cities;

d. to promote the construction of apartments and collective dwellings;

e. to consider the close relationship between house construction and town planning within the framework of master plans;

f. to reconstruct old and unhealthy quarters within the framework of master plans;

g. to exert more careful supervision in the issuing of building permits, obliging builders to observe proper housing standards, provide necessary facilities and make sure that new houses are in conformity with town planning principles, and also to establish regulations for the reconstruction of old and unhealthy buildings;

h. to strengthen and mobilize the Constructional Standards Bureau of the Ministry of Development and Housing so that it is capable of studying the type and style of architecture and the construction materials required for every region of the country;

i. to give priority to the construction of institutional housing in border areas, and regions which suffer from a housing shortage and where private investment in housing is slight, and also to provide for the housing needs of law-enforcement personnel;

j. to conduct research into the framing of regulations related to the proper utilization and maintenance of institutional housing;

k. to ensure that institutional housing is allocated in accordance with the status of the occupants, to solve problems of land ownership in some cases and to eliminate difficulties of communications and provision of urban facilities.

16 - Executive policies as regards Government buildings will be as follows:

a. to centralize all matters concerning the execution of construction works in the Ministry of Development and Housing;

b. to adapt Government buildings to local conditions and to the functions the agencies involved are entrusted with, and to centralize Government offices at the district level as far as possible in a single building;

c. the preparation by the Ministry of Development and Housing of standard designs for such buildings as schools, dispensaries, hospitals, and Government offices, with due regard for the geographic, climatic and natural conditions of various regions of the country;

d. to encourage private investment, through Bank Rahni Iran, in the construction of schools and Government buildings required, which will be leased to Government agencies on a long-term basis;

e. to give priorty to the construction of Government buildings in small towns and districts where private investment is lacking.

Distribution of development credits

17 - Investment by the private sector in housing is to amount to Rials 13 billion per year or Rials 65 billion during the whole Fourth Plan period. It is expected that about 50,000 housing units will be built by the private sector in each of the five years of the Plan, a total of 250,000 units altogether.

18 - Investment by the public sector in construction

and housing will amount to Rials 23 billion during the Fourth Plan period, as follows:

	Millions of Rials
a. Government Buildings	
1. Completion of unfinished projects transferred from the Third Plan	2,310
2. Buildings required by the Armed Forces	11,000
3. New Government buildings	2,797
b. Housing	
1. Institutional housing	3,360
2. Low-cost housing	633
3. Construction loans made by Bank Rahni Iran	2,900
Total	23,000

19 - In addition to these allocations, the Ministry of Development and Housing will invest about Rials 400 million from financial resources at the disposal of the Housing Organization, to provide for some essential Government buildings during the Fourth Plan period.

PART 4

SOCIAL SERVICES AND WELFAE

CHAPTER 17

EDUCATION

INTRODUCTION

1 - Researchers and economists all over the world today regard education as an investment rather than as a consumer item. As one of the most important sectors of the social services, education is rightly regarded as a long-term investment. Apart from meeting the demand of civilized societies for fostering individual talent in different fields and branches of learning, education also caters for the economic needs of society for skilled manpower. It is moreover, a means of increasing the income of individuals, augmenting their standard of living and intellect and an impetus for dynamism and increased social status. These benefits consequently make it possible to attain the goals of constructiveness and better living.

2 - The First and Second Development Plans, which laid the bases of technical and vocational training, only paid attention to certain limited aspects of education. It should therefore be admitted that before the Third Development Plan, educational programmes were not sufficiently comprehensive. Projects and activities were carried out regardless of possible relationships among the different levels and kinds of education and without the discipline imposed by an overall plan. In the process of preparing and implementing the Third Development Plan attention was increasingly paid to the fact that illiteracy and the lack of sufficient technical training in secondary and higher levels can impede the economic and social growth of a country and reduce the productivity of development investments. In the Third Plan, special attention was therefore given to the role of education in development planning in general and to the relationship between education and all other national programmes. Educational programmes were also accepted as an essential and supplementary part of the national development plan.

PAST PERFORMANCE OF THE SECTOR

3 - As already mentioned, the Third Development Plan regarded education as one of the most beneficial means for attaining national ideals and stressed the necessity to adjust it to social and economic requirements.

The Plan also took into account the fact that education and the acquisition of skills is not possible for everyone in a short period of time and that a long-term programme should be prepared and carried out for the improvement and expansion of education. To this end, and in the light of the recommendations of the Asian Conferences of Ministers of Education in New Delhi (1959) and in Tokyo (1962), a twenty-year education programme for Iran (1960-1980) was drawn up with the co-operation of international experts. It was discussed in the Bangkok Conference (1965) within the general framework of educational expansion in Asia and was accepted by the conference. The details of this programme, particularly its projection of population, require careful study, but within limits the programme states the educational strategy of Iran.

4 - During the Third Plan period continued expansion of primary education was given priority over other educational programmes. The target of the primary education programme was to provide educational facilities for 60 per cent of children in the 7-12 year age bracket. It was envisaged that, assuming 1,544,000 primary school pupils at the beginning of the Third Plan, educational facilities should be provided for 681,000 new pupils during the Plan. This would have resulted in 2,225,000 pupils at the end of the Third Plan. It is worth mentioning that at the time of setting the target for the expansion of education, owing to the lack of systematic and consecutive statistics, it was not possible to distinguish the number of children outside the 7-12 age bracket, i.e., children between 12 and 15 years old. (1)

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(1). Children outside the age bracket are those who may stay at primary schools until the maximum age of 15, owing to late enrolment or failure in examinations.

The target of 60 per cent therefore also included these children. At the end of the Third Plan the number of primary school pupils will exceed 2,900,000. The additional number of pupils in this category during the period of the Third Plan will amount to 1,181,000, of which 816,000 will be pupils in ordinary schools in urban and rural areas and the remainder will be pupils of Literacy Corps schools. The success of the Third Plan in primary education expansion has therefore been greater than expectations in that during the Plan period about 500,000 pupils above the Plan target were enrolled at primary schools. (1) Taking into account the fact that at the end of the Third Plan the number of pupils outside the school-age group (amounting to 165,000) had been ascertained, the ratio of primary school students should only be compared with the total of school-age (6-11 years) (2) children. During the Plan period, the ratio of 6-11 year-old children who have received education has been 54.4 per cent and about 14 per cent consisted of 12-15 year olds. The extension of primary education, especially in the rural areas, has clearly met with an unprecedented success, as a result of the activities of the Literacy Corps.

Table 1 shows the estimated and actual increase in the number of primary school pupils by the end of the Third Plan period.

TABLE 1 — EXPANSION OF PRIMARY EDUCATION DURING THE THIRD PLAN PERIOD (THOUSANDS OF PUPILS)

	Beginning of Third Plan	End of Third Plan	Increase during Third Plan
Estimated	1544	2225	681
Actual	1719	2900	1181

5 - Among the basic changes which took place as a result of the 6th of Bahman Referendum, for the purpose of providing social justice and the extension of literacy and education to remote rural areas of the country, was the formation of the Literacy Corps, which consisted of sending high school graduates, after four months of training during their military service, to rural areas and remote villages for the extension of literacy and education to adults and children, and for the promotion of social and self-help services. This programme gave very good results. During the period of the Third Plan, 35,000 Literacy Corpsmen have been trained, of which 34,346 have been posted to rural areas, and of the recent groups 8,323 have been employed as primary school teachers by the Ministry of Education after serving 14 months as Literacy Corpsmen. On average 238,000 primary school students and 106,000 adults have benefited each year from the Literacy Corps. At the same time, numerous development projects, such as school construction, establishment of demonstration farms, and environmental rehabilitation, have been carried out with the guidance of the Corpsmen and co-operation on the part of the villagers. These projects include the construction of 11,000 primary schools, the repair of 7,600 primary schools, the establishment of 16,800 demonstration plots, and the excavation of 47,000 cess-pits up to the end of 1346.* After land reform and other major changes, the Literacy Corps programme has been the chief motivating factor in rural society and has been responsible for mobilizing human resources and directing them towards desirable ends.

6 - As regards secondary education, it was envisaged that the total number of pupils at this level would reach 400,000 at the end of the Third Plan but the overwhelming demand coupled with the response of the private sector and disregard for the Third Plan recommendation that the rate of growth of secondary education should be reduced, resulted in the number of pupils exceeding the forecast. The number of secondary school pupils in the academic year 1345-46 therefore reached the neighbourhood of 579,000 and will amount to about 658,000 by the end of the Plan period, during 1346-47 academic year.

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(1) It should be mentioned that the Third Plan targets, which was prepared in 1338, in respect of the number of primary school pupils at the start of the Plan (1341-1342) was 175,000 below the actual number. In this way, during the five and a half years of the Third Plan the number of pupils enrolled in primary schools was 675,000 more than the target.

(2) As from the 1343-44 academic year, school age has been changed to 6-11 years.

* Reference is also made to the Chapter on Rural Development.

7 - The expansion of vocational training received attention during the Third Plan. According to the Third Plan estimates for manpower, vocational schools should have produced 25 to 30 thousand graduates during the course of the Third Plan. Although it is anticipated that the number of students of technical and vocational schools will increase from 9 to 17 thousand, the number of graduates of vocational schools during the period will be only about 9,200 for various reasons, including the failure to open several new technical colleges for girls and evening vocational institutes, as well as the high rate of drop-outs. On the other hand there have been remarkable successes in improving the quality of vocational training, such as completing and equipping technical and vocational schools, adult vocational centres and technical and agricultural colleges, the Tehran Polytechnic, the Narmak Technical School, the Behbahani Teacher Training Centre as well as the provision of teaching personnel for these institutions, the gradual standardization of equipment, the expansion of technical publications and the establishment of a manpower mobilization council responsible for planning and co-ordination in the field of vocational training at a national level.

8 - In the field of higher education the goal of the Third Plan was to improve the quality of education. As far as expansion in quantity is concerned there was no intention of establishing any universities except the Pahlavi University, but with the establishment of several new faculties in the public sector and the introduction of certain new academic fields in universities and the establishment of independent colleges and faculties in the private sector, the number of university students will have risen from 24,500 at the beginning of the Third Plan period to 37,500 (1) by the end of the period, an increase of 53 per cent (Table 5). At the same time the quality of higher education has greatly improved through the use of such measures as the full-time employment of teaching personnel, the appointment of young, well-educated personnel to teaching and research posts, the reorganization of universities, expansion in scientific and technical fields, the gradual co-ordination of universities through the Central Council of Universities, the strengthening of university research units, especially at the University of Tehran, the establishment of new laboratories and scientific research centres, improvements in the preparation of academic texts by the translation of reputable scientific works and equipping university faculty libraries..

9 - The Third Plan envisaged three types of teacher training: first, regular programmes for the training of primary, secondary, and vocational school teachers; secondly, short-term and long-term programmes to train university graduates for the teaching profession; thirdly, special programmes to train principals for primary and secondary schools. In 1342 the Tehran Teachers' Training College was dissolved and replaced by the Organization for Teacher Training and Educational Research. The latter proceeded to train secondary school teachers for the first and second cycle of secondary schools, school principals, educational advisors and Literacy Corps personnel. At the same time, centres for the training of secondary school teachers were established in provincial universities. In addition, the growing requirements of primary and secondary school teaching were met by establishing four-month courses to train Literacy Corpsmen for service in rural areas, one-year courses for the training of teachers for girls' schools and courses for teachers in tribal schools in Fars and, in certain cases, by employing daily-paid teachers and university graduates without teacher training experience at the college level. Table 2 shows the Third Plan estimates and actual performance in this respect.

TABLE 2 — ESTIMATED AND ACTUAL NUMBER OF TEACHERS TRAINED DURING THIRD PLAN PERIOD

Type of Training	Estimated	Actual
1. Primary school teachers	37,698	30,000
2. Secondary school teachers	8,450	4,000
3. Vocational school teachers	700	620

10 - The revised objective of Third Plan in the campaign against illiteracy was to reduce the illiteracy rate of the over-10 age group by the end of the Plan period

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(1) Excluding enrolment in institutions affiliated to ministries other than the Ministry of Education the enrolment figure for the 1345-46 academic year is 34,000.

from 85 per cent to 60 per cent. Although the age-group selected for the promotion of literacy at the Literacy Congress held in Tehran in 1344 was limited to 10-45 and although serious efforts were made for the promotion of literacy, including pilot projects in Ghazvin, Tehran, Dezful, Abadan, Shiraz, and Esfahan, the illiteracy rate at the end of the Third Plan period amounted to 65 per cent of this age-group. The literacy rate of the 10-45 age-group by the end of the Plan period was therefore 35 per cent (4,683,000) as against 17 per cent (1,673,000) at the 1335 census. It is, however, worth mentioning that the major portion of this rise in the literacy rate has been due to the expansion of primary education, and a small share has been connected with the campaign against illiteracy.

11 - In the Third Plan adult technical training also received attention and arrangements were made to transfer on-the-job training of skilled workers to the Ministry of Labour and Social Services, and industrial management training to the Ministry of Economy.

In carrying out this programme, 1,500 workers, 2,400 supervisors and 300 instructors received training from the Ministry of Labour; 5,500 persons were trained at management level by the Industrial Management Organization and 34,800 soldiers underwent short agricultural and vocational training courses. In addition to these programmes, several short-term and long-term projects were carried out during the period of the Third Plan by Plan Organization and various Government agencies. The most important of these were the training of municipal personnel, police technical personnel, specialized accountants, graduate engineers, topographers, technical personnel of the Iranian State Railways, judicial personnel, technical personnel for the merchant marine and technical personnel for provincial water and electricity utilities.

12 - In spite of the active participation of private investment in education, the public sector is still chiefly responsible for education. It should be mentioned, however, that the private sector has only recently started to be active in this field. Although the lack of accurate information and statistics makes it impossible to reach definite conclusions as to the magnitude of private investment in education, some 75 per cent of kindergartens belong to the private sector and only about 25 per cent to the public sector. This is the only field where the private sector is more active than the public sector. As regards other levels and types of education, the public sector is dominant, with over 90 per cent of primary education, about 83 per cent of non-vocational secondary education and approximately 80 per cent of higher education being controlled by the Government.

In technical and vocational training the private sector seems to be active only in short technical and vocational training and on-the-job training. There are about 3,000 private schools active in different fields of education, all over the country but especially in Tehran, about two-thirds of which give instruction in simple skills and vocations. Most large-scale industries also provide on-the-job training for their workers.

EVALUATION OF THE THIRD EDUCATION PLAN

13 - In spite of the efforts made during the Third Plan period, the educational system in Iran is not yet suited to the needs of the country. Among other things, higher education is not sufficiently developed in comparison with similar countries, neither is there a rational proportion between general secondary school education and technical and vocational training. The expansion of general secondary education in relation to countries with similar populations has been excessive, while adult education, including literacy, technical and vocational training and improvement of skills, has not expanded to the level required by the growing economy of Iran.

The total number of girls in Iranian schools does not exceed one third of total number of pupils and it is therefore appropriate that further efforts are made to expand both the education of girls, especially in rural areas, and of women, in literacy and appropriate vocations.

14 - In practice, the emphasis placed in the Third Plan on quantitative expansion and improvement of quality has not materialized sufficiently. Although relative progress has been made during the Third Plan period in respect of the level of education and academic qualifications both of primary and secondary school teachers,

about 40 per cent of all primary and secondary school teachers still do not hold the qualifications required for teaching at their respective levels and the shortage of science teachers remains one of the major problems.

Teaching methods are still old-fashioned and inadequate, and academic text-books, other than those used at the primary school level, do not conform to modern scientific and educational progress and to the requirements of modern times. A large number of school buildings are not suitable for their purpose, or are rented, and in general the rate of growth of school construction activity has been slower than the rate of growth of education itself, so that a considerable number of schools still operate on a two-shift system. At present, there are about 18,500 classes run on these lines. The number has been rising since the beginning of the Third Plan period owing to the inadeqate rate of progress in constructing new schools. The number of drop-outs, especially in vocational and technical schools, is high, and the average number of hours that the teachers actually work is less than the desired level. These and other factors have resulted in the per capita cost of education being very high, particularly in vocational and industrial schools. Consequently, although Iran spends approximately 19 per cent of its current budget and 4.5 per cent of its Gross National Product on education, about 40 per cent of children of primary school age and about 80 per cent of adolescents are at present not receiving education.

15 - Educational programmes are not yet consistent with the general and economic requirements of the country. This is evidenced by the fact that less than three per cent of secondary school pupils are undergoing technical and vocational training, and general secondary school curricula do not yet have the facilities to offer instruction in various fields for which there is a demand. The low number of students who graduate from the country's vocational centres has been caused in the first instance by the lack of proper management and shortage of competent teaching staff. The two major problems facing technical and vocational schools, the shortage of would-be students and the high rate of drop-outs, are connected with the above two factors. The former problem is also aggravated by other reasons, such as the unsuitable location of schools, the failure to co-ordinate subjects in which tuition is offered with local and regional requirements, and the low level of vocational skills achieved even by successful students, which leads to their inability to be absorbed by the labour market. Regarding the qualitative shortcomings of teaching staff, it should be mentioned that apart from the fact that most technical school teachers are graduates in fields which have no relation whatsoever to what they teach, training such as workshop programmes are left to untrained head-artisans, and as a result there is no proper co-ordination between theoretical lessons and practical training.

Other shortcomings of vocational schools are the lack of proper curricula and teaching methods, the lack of specific criteria and standards, for teaching, construction, equipment and financial matters, the inadequate choice of subjects in which tuition is offered, the failure to ensure co-ordination between vocational training institutions and productive enterprises, and finally the lack of a supervisory and inspection body in matters of technical and vocational training.

16 - The distribution of schools as between Tehran and the provinces, and as between towns and villages, is still unbalanced, and administrative centralization has been responsible for the slow progress of affairs. Owing to this excessive centralization in Tehran and the non-participation of local bodies in decisions, it is very difficult to enlist the support of the local population in educational activities, while departments of education in Tehran are overstaffed with administrative personnel. The effort started in 1345 and 1346 to decentralize planning and budgeting of educational activities on the basis of a selected sample (the province of Kermanshah) has been a necessary and timely step.

17 - At the level of higher education, besides the lack of co-ordination among various educational institutions in terms of regulations, organization, educational, administrative, financial, and personnel standards, there are other difficulties, such as the proper implementation of the Law for Full-Time Employment of Teaching Staff, the inadequate progress of scientific research, the lack of co-ordination between scientific and technical

fields and other fields on the other, and finally the shortage of equipment and personnel in a number of existing colleges and universities.

GENERAL OBJECTIVES OF THE FOURTH EDUCATION PLAN

18 - The general objectives of the Fourth Education Plan are to develop education rapidly while maintaining better balance and relationship between different kinds and levels of education to improve the quality of education and to establish greater compatibility and consistency between the country's educational system and the diversified and increasing manpower requirements of different productive, social and cultural sectors.

On this basis, a new system of education is envisaged for the Fourth Plan period. At the same time, forecasts have been made of the various requirements for skilled manpower of Iran's economy and society in terms of quantity and quality, further details of which are given below.

a. The new system of education

19 - The new system envisages a major change in the structure of education in the country, under which the school cycle, instead of comprising two six-year periods of primary and secondary education, will be divided into three periods consisting of a five-year primary period, a three-year academic guidance period and a four-year secondary period. Until all children of school age are actually attending school, the period of compulsory free education will be temporarily reduced to five years. At the second stage, when all children of school age are enrolled for the five-year period, and when the country can financially afford it, the three-year guidance period will be made compulsory and free so that primary education up to the age of 14 will become universal throughout the country, as it is in many advanced countries of the world. Under the new scheme, the three-year guidance period which has been established as an intermediate period between the five-year primary and four-year secondary periods, is in fact a stage where the talents and capacity to benefit from education in different fields will be identified. The young people will also be guided in selecting jobs in keeping their talents and the various specialized requirements of the country. For this reason the curriculum of this period will include technical and vocational courses in addition to the theoretical courses which have until now been taught in the first three years of secondary school so that conditions conducive to the development of pupils' interests in technical and vocational fields will be created and more of them will be directed towards the technical and vocational fields specifically required by economic development.

Since the Ministry of Education introduced the first year of the new five-year period in the academic year 1344-45 and complete implementation of this stage will require a relatively long time, it became necessary to introduce the first year of the guidance period throughout the country even before the revised five-year primary period programme had been completely introduced. The new academic guidance period will therefore be introduced throughout the country as from the beginning of 1347-48 academic year, which overlaps with the first year of the Fourth Plan period.

20 - The new system is orientated towards structural change as well as changes in the bases, principles and

Sector Skill level	Demand for skilled manpower		
			S
	Agriculture	Industry	Industri Adminis
Medium-level	6,030	12,460	23,70
High-level technicians and managers	2,080	2,930	13,17
Skilled workers, administrative personnel in industry and ordinary level of services	292,000	171,000	

objectives of education. This means that, while extending educational facilities to all children in the country, especially those in rural areas, efforts should be made towards creating conditions conducive to the development of the talents of the younger generation and directing them in ways which are compatible both with such talents and with the various social and economic requirements of the country. The new system provides for the expansion of free technical and vocational training as far as possible, and with sufficient variety and flexibility to satisfy the requirements of the country. The basic objective is to prepare individuals for participation in different fields of productive and economic development by recognising and respecting their inherent talents.

Further objectives are to develop students for their role in the new society and for active and effective participation in modern political life; to enable them to make proper use of their social rights; to attain the capacity and competence necessary for membership of a free and progressive society; to stimulate their interest in the culture and civilization of Iran while strengthening them mentally, intellectually and physically; to elevate their aspirations and give them moral and intellectual balance as well as belief in a creative and positive social philosophy.

b. Supply of skilled manpower

21 - The educational objectives of the Fourth Plan have been selected with due regard to creating qualitative and quantitative balance in the manpower required for the Plan. Table 3 shows the level of supply of and demand for manpower, existing shortages, and special measures for removing such shortages.

22 - The shortage of skilled manpower in some sectors should not be taken to mean disequilibrium during the Fourth Plan period as the figures given for supply are based on activity within the framework of formal education, whereas other kinds of education are provided by industrial concerns and other institutions, especially in the private sector, and also by private vocational schools if there is enough public demand. This factor will make up for the shortage at the lower level of skills while at medium and higher levels, the requirements will be met by educational institutes. Also, figures are given in the Manpower Plan concerning certain jobs in the service

TABLE 3 — MANPOWER DEMAND, SUPPLY AND BALANCE UNDER THE FOURTH PLAN

	Supply of skilled manpower			Shortage of skilled manpower			
rdinary vel	Agriculture	Industry	Services	Agriculture	Industry	Services	Method of meeting the shortage
47,000	6,030	12,000	91,000	0	460	1,700	On-the-job training by the private sector and training at non-Government schools
25,000	2,080	2,930	30,590	0	—	7,580	Utilization of short-term courses run by the Industrial Management Organization
	292,000	90,000	46,000	0	81,000	105,000	On-the-job training by the private sector and training at non-Government schools

sector, such as wholesaling, retailing, caretaking and domestic jobs, for which no special training is envisaged and is not included in the shortages, as in Iran the necessary skills are usually learnt on the job.

SPECIFIC OBJECTIVES AND PROGRAMMES

23 - In the field of kindergarten education the objective is to improve this kind of education. The expansion of kindergarten education during the Fourth Plan period will be made entirely by the private sector. It is estimated that by the end of the Plan the total number of children at kindergarten will exceed twenty thousand. During the Fourth Plan period the Government's role in this field will be limited to the provision of facilities for improving the quality of kindergarten teachers. Future kindergarten teachers will be trained by a number of private educational institutions at a level above that of secondary school.

24 - In primary education the objective is to increase the number of primary school students from 2.9 million (1) to 3.7 million (2) so that about 93 per cent of school-age children in towns (3) and 55 per cent in rural areas (4) will receive primary school education during the Fourth Plan. Of this figure between 320,000 and 360,000 per year will receive education from 8,000 Literacy Corpsmen.

25 - The three-year academic guidance period, the objective of which is to teach theoretical subjects and

TABLE 5 — INCREASE IN THE NUMBER OF STUDENTS IN THE THIRD AND FOURTH PLAN PERIOD (THOUSANDS OF STUDENTS)

	Number at the end of Second Plan 41-42	Number at the end of Third Plan 46-47	Absolute increase	Percentage increase of Third Plan over Second Plan	Number at the end of Fourth Plan	Absolute increase	Percentage increase of Fourth Plan over Third Plan
Kindergarten	13	16	3	23.1	20	4	25
Primary	1,719	2,900	1,181	68.7	3,738	838	29
Secondary	336	658	322	95.9	1,328 (1)	670	101
Vocational	9	17	8	88.9	50	33	194
Higher education	24.6	37.5	12.9	52.4	60	22.5	60
	1335	1346	Absolute Increase	Percentage Increase	1351	Absolute Increase	Percentage increase
Number of literates	1,673	4,673	3,010	179	9,075	4,392	93

(1) This figure comprises		
	872,000	in guidance courses
	376,000	in theoretical secondary courses
	80,000	in combined theoretical and vocational secondary courses
	1,328,000	

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(1) This figure includes pupils at primary school aged 6-11, and older, who are receiving primary education under the old six-year system. If the sixth grade is considered as the first year of the new "guidance" period then the figure must be reduced to 2.6 million.

(2) This figure includes primary school pupils aged 6-10, and older, in accordance with the new five-year educational system.

(3) By "town" is meant provincial towns which are the seat of governors and governors-general, according to the definition accepted by the Ministry of Education.

(4) Owing to the fact that a large number of villages do not have a sufficient number of school-age children (16,000 villages in Iran have less than 150 inhabitants and consequently less than 24 school-age children in the 6-11 age group) to warrant the establishment of schools, the figure of 55 per cent does not explain the considerable expansion of primary education during the Fourth Plan period in the more populated villages.

to introduce to pupils the basic principles of vocations and technology, awaken their interest in practical matters, discover their talents and guide them properly, will be introduced at the beginning of the Fourth Plan. At the end of the Fourth Plan period there will be 737,000 pupils studying in these courses (sixth to eighth grade).

26 - Secondary education (theoretical) — As has already been mentioned the adoption of the new system of education will lead to the old and new systems of secondary education being implemented throughout the country during the whole of the Fourth Plan period and until 1353, with the new intermediate education system only being implemented in the years 1350-51 and 1351-52. There will therefore be about 376,000 pupils undergoing secondary education at the end of the Fourth Plan period. Of the students of the new secondary stage, theoretical as opposed to practical, about 20 per cent will receive education at Government secondary schools and 80 per cent at private schools.

27 - Combined vocational and theoretical education and comprehensive schools — During the Fourth Plan period combined theoretical and technical education, particularly vocations required for services, will be instituted in general secondary schools. Also, education in comprehensive schools will cover 80,000 secondary-school pupils. This kind of education will be provided largely to meet the requirements of the country for middle-level staff of the service sector. It will not necessarily cover the complete course of secondary education and according to the needs of each field will cover a period of from one to four years as needed by the respective fields of education. Combined technical education covering fields such as practical nursing, accounting, teaching, services related to tourism, a sample list of which is given in Table 5, will be included in the curricula

TABLE 5 — SUBJECTS IN WHICH TRAINING WILL BE REQUIRED ON COMBINED THEORETICAL AND VOCATIONAL COURSES AND ON COURSES OF COMPREHENSIVE EDUCATION

Major fields	Individual subjects
1. Mechanics	Industrial design, Mechanical design.
2. Construction	Construction design.
3. Chemical and biochemical industries	Assistant laboratory technician duties, Dyeing and cleaning.
4. Textiles	Spinning, Weaving, Spinning quality control, Textile identification.
5. Clothing industry	Cutting, Designing, Sewing, Dry cleaning.
6. Ceramics and tiles	Ceramics and tiles.
7. Health services	Assistant nursing duties, Dental technology, Orthopaedics, Laboratory assistant duties, Assistant pharmacist duties, Assistant radiologist and radiotherapist duties, Beauty treatment and physiotherapy.
8. Social services	Assistant social worker duties, Journalism, Kindergarten instructor duties, Home economics, Tourist guide duties.
9. Arts and technical services	Decorative arts, Painting, Draughtsmanship, Geographical topography, Photography, Cinematography, Optical science.
10. Handicrafts and trades	Woodworking, Carving and engraving, Jewellery and inlaid work, Watchmaking and watch-repairing.
11. Commercial services	Hotel and restaurant work, Printing and binding, Hairdressing, Salesmanship, Store-keeping.
12. Administrative and banking services	Clerical work, Shorthand and typing, Accounting (industrial, commercial, banking and administrative), Statistics.

of secondary theoretical schools. By comprehensive education is meant the establishment of a few large schools with many branches and flexible and varied programmes.

It is expected that during the Fourth Plan period 46,000 pupils will graduate from the combined vocational schools and comprehensive schools and approximately 3,000 will graduate from secretarial and business schools, making a total of 49,000. There will thus be a shortage of about 106,700* specialists in industrial administration and ordinary services. This shortage is expected to be met by on-the-job training provided by the private sector and by private schools.

28 - The total number of secondary school graduates during the Fourth Plan period, including both theoretical and combined courses, is estimated at 290,000. This figure consists of 46,000 graduates of combined theoretical and vocational courses and about 244,000 graduates of general secondary education. It should be noted that about one third of them (87,000) will be girls. Studies indicate the following possibilities for absorbing them: about 50,000 by institutions of higher education including universities and colleges, about 42,000 as ordinary teachers and Literacy Corpsmen, approximately 23,700 as medium-level administrative staff in the industrial sector; and finally about 112,000 as medium-level administrative staff in the services sector. Thus, a total of about 227,700 will be employed during the period of the Fourth Plan and the remainder, estimated at 62,300, will probably mostly be girls willing to be engaged in the activities of family life. If, however, they are interested in entering the labour market, they should receive necessary technical and vocational training through short-term pre-service and on-the-job training programmes.

29 - Considering the intensive emphasis of the Fourth Plan on industrial development, technical and vocational training will be given priority during the Plan period, and it will be necessary to direct a greater number of students to the technical and vocational fields required, as indicated in Table 6. On this basis, the target of long-term training in industrial, agricultural, technical and vocational schools will be to increase the number of students from 17,000 at the end of the Third Plan period to 50,000 at the end of the Fourth Plan period.

This number includes preliminary courses as well as complete courses of technical and vocational training. The number of graduates of complete technical training programmes in agricultural and industrial fields at the end of the Fourth Plan period is estimated at 18,030 and the number of graduates of vocational schools or preparatory vocational courses is estimated at 10,900. The number of industrial and agricultural technicians required by the Fourth Plan is estimated at 18,490. This will still leave a shortage of 460, largely of industrial technicians. It is expected that this shortage will be met by on-the-job training provided by the private sector. Under the Fourth Plan, the vocational and industrial schools, instead of working separately, will merge to form vocational and technical training centres. Maximum utilization will thus be made of the equipment, facilities and personnel of these institutions, which will be administered under boards of trustees according to special regulations.

The major objective of technical and vocational training in agriculture will be to provide the specialized manpower required for agricultural production and agricultural services within the sphere of operations of the public sector and the private sector. This objective will be realized at different levels as follows:

i. At the technical training level, the objective will be to train agricultural technicians.

ii. At the vocational training level, the objective will be to train farmers.

The potential for training of specialized personnel required by the Plan is estimated as follows:

a. Training of all agricultural technicians required in both the private and public sector (about 6,030 personnel in all).

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* This figure consists of 1,700 industrial administrative personnel and 105,000 ordinary-level services personnel as shown in Table 3.

b. Training of about 70,000 farmers, who will in turn train about 220,000 farmers. It will be necessary to make the maximum utilization of agricultural extension methods, mobile training groups and agricultural training of conscripts by on-the-job training as well as organized visits to demonstration farms, and similar methods.

TABLE 6 — VOCATIONAL, TECHNICAL AND AGRICULTURAL SUBJECTS IN WHICH TRAINING WILL BE REQUIRED AT THE SECONDARY EDUCATION LEVEL

Main fields	Individual subjects
1 — Mechanics	1 — Machine tools
	2 — Gasoline and diesel engines
	3 — Industrial design
	4 — Mechanical design
	5 — Welding and metal framework
	6 — Plate work and body making
	7 — Plumbing
	8 — Maintenance and repair of machine tools
	9 — Accounting machines and typewriters
	10 — Automobile and tractor mechanics
	11 — Moulding
	12 — Heating equipment
	13 — Cooling equipment
	14 — Stationary steam engines
	15 — Printing machines
	16 — Polishing and varnishing
	17 — Precision tool mechanics
	18 — Engines and pumps
	19 — Aeronautical mechanics
	20 — Meteorological measurement
2 — Metallurgy	**Smelting and treating:**
	1 — Iron and steel
	2 — Non-ferrous metals (including aluminium)
	3 — Casting and modelling
3 — Construction	1 — Construction (general)
	2 — Construction design
	3 — Surveying and estimating
	4 — Concrete making and reinforcing
	5 — Shuttering
	6 — Bridge construction
	7 — Tunnel construction
	8 — Road building
	9 — Canal and dam construction
	10 — Soil mechanics
	11 — Tile and brick making
	12 — Construction materials
	13 — Road construction machinery
	14 — Stone cutting and facing
	15 — Stairway design
	16 — Insulation
	17 — Plastering
4 — Electricity	1 — High tension
	2 — Low tension

(Continued on next page)

(Table 6 cont.)

Main fields	Individual subjects
5 — Electronics	1 — Radio and television
	2 — Telephone, telegraph and other telecommunication equipment
	3 — Accounting and classifying machinery
	4 — Assembly and repair of electronic inspection devices
	5 — Telecommunications
6 — Mining	1 — Drilling
	2 — Ore concentration
	3 — Exploration geology
	4 — Geophysics
7 — Chemical and biochemical industries	1 — Petroleum chemistry, natural gas
	2 — Industrial chemicals
	3 — Dyestuffs and protective clothing materials
	4 — Dyeing
	5 — Assistant laboratory technician duties
	6 — Chemistry of wood materials
	7 — Metallurgical chemistry
	8 — Biochemistry
	9 — Pharmaceutical, perfumery, photographic, cosmetic and hygienic materials
8 — Textiles	1 — Spinning
	2 — Weaving
	3 — Spinning computation and quality control
9 — Wood processing	1 — Treatment of wood
	2 — Manufacture of fibre-board
	3 — Carpentry
	4 — Manufacture of foundry models
10 — Clothing manufacture	1 — Cutting
	2 — Design
	3 — Sewing
11 — Leather processing	1 — Leather treating (tanning) and industrial production of leather
	2 — Industrial processing of leather
12 — Food processing	1 — Dairy production
	2 — Fruit and vegetable drying and canning
	3 — Meat and fish canning
13 — Paper and board manufacture	1 — Manufacture of paper and board
	2 — Manufacture of paper and board products
14 — Glass manufacture	1 — Manufacture of glass
	2 — Manufacture of glass and crystal products
15 — Ceramics and tiles	1 — Ceramics and tiles
16 — Transport, communications and telecommunications	1 — By air
	2 — By sea
	3 — By rail
	4 — Meteorology
17 — Health services	1 — Specialized nursing aid duties
	2 — Dental and orthopaedic technician duties
	3 — Laboratory assistant duties
	4 — Assistant pharmacist duties
	5 — Assistant veterinarian duties
	6 — Assistant radiologist and radiotherapist duties

(Continued on next page)

(Table 6 cont.)

Main fields	Individual subjects
18 — Social services	1 — Assistant social worker duties
19 — Arts and technical services	1 — Photography
	2 — Painting
	3 — Decorative arts
	4 — Draughtsmanship and geographical topography
	5 — Cinematography
	6 — Optical science
20 — Handicrafts and trades	1 — Leatherwork
	2 — Woodwork, carving and engraving
	3 — Jewellery and inlaid work
	4 — Watchmaking
	5 — Perfumery
	6 — Repairs
21 — Commercial services	1 — Wholesaling
	2 — Hotel and restaurant work
	3 — Beauty treatment
	4 — Printing and book-binding
22 — Administrative and banking services	1 — Secretarial work and shorthand
	2 — Accounting
	3 — Mechanography
	4 — Statistics
23 — Agriculture and animal husbandry	1 — Agriculture and irrigation
	2 — Gardening, flower and market gardening
	3 — Agricultural machinery
	4 — Pest control
	5 — Forests and pastures
24 — Fisheries	1 — Pisciculture
	2 — Fishing
25 — Poultry breeding	1 — Poultry breeding

30 - Teacher training — In order to provide for the requirements of the students at different levels of education, the following teaching personnel will be needed during the Fourth Plan period:

Type of education	No. of teaching personnel required	
Primary education	35,700	
Academic guidance courses	10,826 (1)	
Secondary courses (theoretical)	7,540 (2)	
Combined secondary courses (theoretical and vocational)	2,670	10,210
Technical and vocational courses	2,480	

About one thousand new staff will also be required for teaching at the university level. (3)

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(1) For these courses there will be a need for a total of 36,096 teachers, of which 8,000 will be recruited from the existing primary school teaching organization, 17,270 from the existing secondary school organization and the remainder, — 10,826 teachers — by new recruitment.

(2) See paragraph 26.

(3) Funds for training of teachers at all levels will be provided from the Government current expenditure budget.

31 - The objective of the literacy campaign programme will be to increase the literacy rate among the 10-45 age group from 35 per cent at the end of the Third Plan to 60 per cent at the end of the Fourth Plan. The number of new literates at the end of the Fourth Plan will be 4,400,000, of which 2,400,000 will become literate by attending primary school or by the efforts of the Literacy Corps and the remaining two million will become literate under the literacy campaign programme by taking two courses of preliminary and complementary education and studying special books prepared to help their social and vocational aptitudes. Literacy campaign courses will include three stages: preliminary, advanced and complementary. The minimum requirement for becoming literate will be to take the preliminary and advanced courses, both six months in duration. For a number of new literates a complementary stage, designed to be helpful and effective in their professional, social and economic advancement is also planned. By the end of the Fourth Plan period, therefore, out of the total 10-45 age group, estimated at 15,173,600, about 9,075,900 will be literate.

32 - In higher education, in order to make it unnecessary for students to be sent abroad other than for specialized fields of study, the Fourth Plan envisages improvements in the quality of higher education, an increase in the number of university students by establishing new fields of study for which there is a demand, and the full utilization of the capacity of existing universities. The total number of university students at the end of the Third Plan — excluding students at institutes of higher education affiliated to ministries and Government agencies — is estimated at 37,500. The target of the Fourth Plan will be to increase this number to about 60,000, an increase of 60 per cent. Table 7 shows the expected distribution of university students in terms of the manpower requirements of the Fourth Plan and Table 8 development allocations for construction and equipment.

The distribution of university students will be such that about 55 per cent receive education in scientific, technical and industrial fields and the remaining 45 per cent in other fields of study.

The number of university students who will graduate during the course of the Fourth Plan period is expected to be about 35,600. In view of the demand for skilled manpower at high levels and at management level, a shortage of about 7,580 graduates is envisaged, particularly at the level of industrial and services managers. This shortage should if possible be eliminated by encouraging Iranian university graduates abroad to return home, by short-term courses offered by the Industrial Management Organization, which will expand its programmes so as to train about 14,000 industrial managers and medium-level and high-level personnel, and by better utilization of business and management courses in both the public and the private sector.

33 - In addition to the activities of the private sector in vocational training of adult workers, instructing new skills or refreshing old skills, the establishment, expansion and strengthening of which should be planned by the Government, the public sector will also make extensive efforts in this field, partly as provided for under new industrial projects such as the steel mill and petrochemical projects. It is expected that about 18,000 workers and technicians will be trained under such projects. Funds for these purposes have been allocated under the projects concerned. (See relevant chapters.) The Ministry of Labour will also be active at four existing training centres, the capacity of which will have to be expanded, and at four new training centres. At the Ministry of Labour training centres about 50,000 workers will benefit by improving or changing their skills. About 36,000 soldiers will also receive short-term technical and vocational training, and a number of them who have had vocational experience will be promoted to skilled level status. The total number of skilled workers trained during the Fourth Plan period will amount to approximately 90,000, of whom 10,900 will undergo the first course at vocational training centres while the remainder, estimated at about 81,000 will receive on-the-job training provided by the private sector. In addition, funds have been allocated under the Fourth Plan to send qualified individual abroad so as to acquire the necessary specialized skills needed in industry and agriculture.

TABLE 7 — ESTIMATE OF THE NUMBER OF UNIVERSITY STUDENTS AT THE END OF THE FOURTH PLAN PERIOD, ALLOWING FOR MANPOWER REQUIREMENTS

	Number of students	Percentage of total
a - Scientific and technical fields		
1. Veterinary sciences	500	1.5
2. Agriculture	2,550	7.7
3. Science	5,500	16.7
4. Engineering and Architecture	8,900	26.9
5. Medicine	10,600	32.1
6. Dentistry	1,150	3.5
7. Pharmacology	1,100	3.3
8. Technical teachers in secondary schools	2,700	8.3
Total	33,000	100.0
b - Literary and theoretical fields		
9. Literature and education	10,600	39.3
10. Law and Social Sciences	5,600	20.6
11. Economics, Administrative and Business Science	9,500	35.2
12. Theology	1,300	4.9
Total	27,000	100.0
Grand Total	60,000	100.0

TABLE 8 — DISTRIBUTION OF DEVELOPMENT FUNDS FOR CONSTRUCTION AND EQUIPMENT ALLOCATED TO UNIVERSITY EDUCATION UNDER THE FOURTH PLAN (THOUSANDS OF RIALS)

1. Increase in capital expenditure in relation to the increase in number of students in scientific and technical fields	1,482,000
2. Increase in capital expenditure in relation to the increase in number of students in literary and theoretical fields	255,500
3. New construction works and completion of works in progress	2,044,500
4. University activities	518,000
5. Construction and equipment of teaching hospitals	1,700,000
Total	6,000,000

34 - Educational radio and television — Under the Fourth Plan, educational radio and television will be utilized for primary, secondary, adult and higher education. Films and other audio-visual facilities will also be used. The primary objective of educational programmes provided by radio and television will be to improve the quality of education.

At the level of primary education, radio receivers will be used in 18,000 villages with ordinary or Literacy Corps primary schools. Radio broadcasts will also be used for adult education and for this purpose educational facilities will be provided at public gathering places as detailed in Chapter Twenty-one. It is expected that such facilities will be provided at 150 large villages or rural centres.

In carrying out educational programmes through radio and television, especially at the secondary and higher education levels, closed-circuit receivers will be used in addition to public television, the former especially where scientific and technical subjects are involved. In addition to these measures, correspondence courses will also be encouraged under the Fourth Plan in order to expand education.

35 - The development and promotion of scientific research is one of the most important objectives of the Fourth Education Plan. Priority will be given to various research programmes especially those of benefit to economic development. Funds allocated to research will gradually be increased from the present level of 0.45 per cent to about one per cent of Gross National Product. A clear policy for the advancement of scientific research and co-ordination of research activities will be drawn up by the establishment of a National Council for Scientific Research, affiliated to the Ministry of Science and Higher Education, which will have specialized committees.

EXECUTIVE POLICIES

36 - The executive policies of the Fourth Education Plan will be as follows:

a. The reorganization of the Ministry of Education: first, by decentralizing its administration and distribution of funds on the basis of the needs of each province as well as by creating conditions which will encourage the local population to participate in the administration and supervision of educational affairs by means of education councils at provincial and rural district level which will be affiliated to corresponding provincial councils, and by mobilizing local resources as far as possible for the expansion of education; secondly, by reducing administrative personnel in Tehran and delegating personnel, supplies and accounting functions to local education departments so that the activities of the Ministry will be limited to planning, establishing overall standards, preparing programmes and supervisory duties; thirdly, by transferring some qualified personnel now engaged in administrative work to educational work; and fourthly, by adopting modern administrative, financial and personnel methods and procedures, which will speed up the tempo of activity.

b. The establishment of a special institute for the training of planners and educational directors to provide for the future needs for educational administrators.

c. In view of the Government's heavy responsibilities in educational affairs, it is necessary to encourage investment by the private sector under Government supervision and according to special regulations.

d. The small size of training units — both theoretical and vocational — leads to numerous difficulties. Measures will therefore be taken to combine such units, especially in urban regions, so that the maximum utilization can be made of resources, equipment, laboratories, workshops and teaching personnel.

37 - In primary education, the prerequisites for the establishment of permanent schools with permanent teaching staff will be provided in all villages to which Literacy Corpsmen have been sent. Since the number of girls attending primary schools is about half the number of boys, and especially since girls in rural areas have been deprived of primary education in the past, local women, the wives of Literacy Corpsmen and village teachers and community workers (see Chapter Twenty-one) must be used to train the female community in rural areas, in addition to Literacy Corpsmen

(and their female counterparts) and women teachers appointed to such villages.

38 - The manner in which academic guidance courses will be established and executive policies relating to them will be as follows:

a. Before guidance courses are introduced, the Ministry of Education will establish a special internal unit for the administration of such courses throughout the country.

b. Books, buildings and workshop equipment for guidance courses will be provided.

c. Since the training of guidance teachers specialized in educational psychology requires a relatively long time and in view of the necessity to speed up the implementation of the scheme, training courses will be held for teachers of the present sixth, seventh and eighth grades and two-year courses will be organized for the training of guidance teachers, ordinary teachers and vocational teachers at training colleges for general and vocational teachers.

d. Since the academic guidance stage will be introduced for children who have passed the fifth grade of primary schools as from the 1347-48 academic year, the old and new systems will be taught side by side during the Fourth Plan period. Only in 1353 will the new system of education be carried out exclusively throughout the country.

39 - In the field of secondary education, provision for greater flexibility and variety in curricula is recommended. Special attention will be given to the introduction of vocational courses into general secondary schools in a manner compatible with requirements (combined theoretical and vocational schools). The new system of secondary education, which will be taught during the last two years of the Plan period, will be divided into two main branches, one general and one vocational, and each of these will be divided into a number of sub-branches. The general branch will include short-term and long-term courses of management, commerce, accounting, practical nursing, teaching, arts and technical subjects. These will be in addition to the existing courses of literature, mathematics, natural science and home economics. The technical and vocational branch will have a greater variety of courses and will consist of short-term and long-term courses based on the varied requirements of the country. Not all these courses will result in the award of a diploma, and the length of the academic period and the nature of the diploma, if any, awarded, will depend on the type of course and the dictates of the labour market. Pupils who successfully complete their primary education but are not able or willing to continue their education by taking the guidance course will be offered one or two-year vocational training courses. Also providing loans and scholarships to outstanding students. From viewpoint of manpower training requirements and considering the policies set out in Chapter 15 of the Outline of the Fourth Plan, wherein particular attention has been given to setting up technical and vocational schools, at least one vocational school or amoozeshgah will be established against each new high school coming up or allowed to be built by the private sector, after the guidance course is over.

40 - Improvements will be made in the organization of technical and vocational schools in accordance with the decision of the Manpower Mobilization Council (dated Dey 7th, 1345) so that these schools will be transformed into large comprehensive centres of vocational education, combining the present technical and vocational schools, other short-term courses and evening classes. They will be administered by boards of trustees in which local industrialists will participate. It is therefore essential for a close relationship to be established between technical and vocational training, on the one hand, and productive and servicing institutions, on the other. Such a relationship will include the establishment of a statutory on-the-job industrial training system. Students of technical and vocational schools will thus be trained for technical jobs. In view of the utmost importance of efficiency in training institutions and the creation of suitable conditions for contact between economic activity and vocational training, vocational centres should in the first instance be established in areas and regions where the density of population and economic activity will be sufficient to provide employment for technical students after completion of their courses. Under the Fourth Plan, vocational training centres

will therefore be established adjacent to large industrial units and in industrial regions.

41 - Teachers of vocational centres will be trained so that they can perform the twin functions of teaching technical courses and supervising workshop operations. This will not only result in a saving in the number of vocational school teachers required, but will also lead to an improvement in the quality of the teachers themselves and hence justify higher levels of salary than under the present system.

42 - Technical and vocational training in agriculture will be offered in the following major units:

a. Agricultural training centres for technical and vocational training and pre-service orientation. Agricultural training centres will be administered under boards of trustees in which representatives of the private agriculture sector will participate.

b. Pre-service training centres of regional development organizations.

c. Existing or planned training units near agricultural productive and research units and demonstration farms for vocational and pre-service training.

d. Training units to be established near military garrisons for extensive vocational training of agricultural workers.

In order to ensure co-ordination among the above training units and the maximum utilization of the resources of all units and departments of the Ministry of Agriculture and regional development organizations, a Council will be formed within the Ministry of Agriculture under the chairmanship of the Minister of Agriculture or the Deputy Minister, of which the directors of the regional development organizations will be members. The technical secretariat of the Council, to be called the Agricultural Training Organization, will also be responsible for the administrative, technical and financial affairs of the agricultural training centres.

43 - As regards teaching and technical personnel, and to meet the requirements of the agricultural training centres, the following measures will be taken:

a. Close co-operation will be created among agricultural colleges and teacher training centres in order to train teachers for specialized agricultural courses. This co-operation will include the establishment of short-term training programmes utilizing the existing teaching staff.

b. Necessary measures will be taken to determine pay scales for teaching and technical personnel so that the average earnings of teaching personnel at training centres will not be less than those of similar personnel in other training centres.

c. The theoretical courses of agricultural technology will be taught by the actual supervisors of agricultural operations. With the participation of students and those taking short-term courses at these agricultural training centres, the number of paid agricultural workers engaged in agricultural operations at these centres can be reduced.

44 - The Manpower Mobilization Council should be strengthened for the following purposes: to formulate the manpower policy of the country; to ensure co-ordination among technical and vocational training institutions; to decide on the introduction of new technical and vocational fields of study; to determine the requirements of each region and locality; to make any necessary reforms in the vocational training system; to determine the specific needs of each ministry and Government agency; to recommend vocational training programmes for large industrial and agricultural projects; and to carry out similar functions.

45 - Industrial concerns, especially large ones, should either make direct investment in training their personnel or else be under legal sanction to participate in the cost of technical and vocational training. The Government should likewise encourage and provide necessary facilities for individual firms that are willing to train technical personnel beyond their own requirements.

46 - Special attention will be paid to the training of vocational teachers of workers and to their rates of pay in order to expand the vocational training of workers.

To this end, strong support should be given to the Vocational Teachers' Training Centre in Tehran and to ensure the participation of the Iran Chamber of Industries and Mines in its administration. Industrialists should also be encouraged to co-operate with these teachers, who should visit industrial plants for on-the-job training. Trustee boards should be also formed for adult vocational training centres with the participation of representatives of private industry and related Government agencies, especially the Ministry of Economy.

47 - In addition to the Ministry of Education, the Ministry of Labour, the Ministry of Economy and the Ministry of Agriculture, most Government agencies provide special vocational training, a short summary of which is given in Table 9. During the Fourth Plan period, ministries and Government agencies will, as in the past, be responsible for special vocational training related to their needs under the supervision of the Manpower Mobilization Council.

48 - At the level of higher education, in addition to the establishment of boards of trustees in all universities and a Ministry of Science and Higher Education, essential measures will be as follows:

a. to invite the best Iranian students, both Government-sponsored and others, who have graduated from universities abroad, to return to Iran to teach at local universities, and to see that university teaching personnel are of such calibre that in future universities will be able to meet their requirements for teaching personnel from among their own outstanding graduates;

b. to provide facilities for talented and deserving Iranian students who have graduated from local or foreign universities to engage in research activities at universities or at the committees affiliated with the National Council for Scientific Research;

c. to ensure suitable salaries and working conditions

TABLE 9 — EXISTING VOCATIONAL TRAINING INSTITUTIONS FOR SPECIAL REQUIREMENTS

Responsible agency	Name of centre	Objective	Training period
Ministry of Economy	Esfahan Textile Centre	Training of textile technicians	3 years
	Standards Institute	Pre-service industrial mining and chemical training	3, 6 and 12 months
Ministry of Health	Ministry of Health Technical School	Training of administrative personnel, assistant nurses, nurses, sanitary engineering assistants, laboratory technician assistants, specialized health technicians (vaccinators, etc.)	1-2 years
	Food and Nutrition Institute	Training of nutritionists	3-4 years
Ministry of P.T.T.	P.T.T. Technical School	Training of technicians, assistant engineers and engineers	1 and 2 year
Ministry of Finance	Institute of Finance	Training of Ministry of Finance staff	2 years
Ministry of Water and Power	—	Training of water and power technicians	—
Ministry of Agriculture	Institute of Forestry	Training of forestry and pasture technicians at post secondary school level	2 years

(Continued on next page)

(Table 9 cont.)

Responsible agency	Name of centre	Objective	Training period
	Institute of Animal Husbandry and Veterinary Science	Training of animal husbandry technicians at post secondary school level	2 years
The Imperial Armed Forces (Ground Force)	Army Vocational School	Vocational training of soldiers and specific training in the fields of mechanics, electricity, bricklaying, carpentry, metalwork, shoemaking, tailoring, plumbing, welding	3 months
	Military Industries Organization	Explosive manufacturing plant project	
National Iranian Oil Company	Abadan Institute of Technology	Training of specialized accountants	
	Vocational schools	Training of nurses and petroleum technicians	
Ministry of Interior	Garmsar Community Development School	Training of village community workers	
Ministry of Interior (Municipalities)	Faculty of Administrative Science	Training of mayors and financial directors	$4\frac{1}{2}$ and 6 months
The Society for Protection of Mother and Child	Nursing Assistant School	Training of instructors for kindergartens and nurseries	2 years
Tehran Municipality	Tehran Training Organization	Training of carpenters, tailors and shoemakers	short periods
School of Social Services	Institute of Social Services	Training of social workers and assistant social workers	
Tobacco Monopoly	Tobacco Institute	Training of tobacco cultivation experts	2 years
Imperial Iranian Armed Forces (Naval Force)	Non-commissioned Officers School	Training of specialized personnel in the fields of engine work, rudder electricians and artillery	2 years
Imperial Iranian Armed Forces (Air Force)	Special School		
Banking Institution	Institute of Banking		
Iranian National Tourist Organization	Tourism Training Centre	Training of administrators and tourist guides	4 months to 1 year
Plan Organization	Advanced School of Cartography	Training of draughtsmen and cartographers	2 years
The Cartographic Organization	Cartographic School	—	—
Department-General of Meteorology	Meterological School	Training of meteorologists and draughtsmen	1 year and 2 years

Continued on next page

(Table 9 cont.)

Responsible agency	Name of centre	Objective	Training period
Ports and Navigation Organization	Training Department of Ports and Navigation Organization	Pre-service training of merchant marine personnel, training of electrical, engine-room and communications technicians and cargo handling specialists	9 to 12 months
Iranian State Railways	Railway Technical School	Training of technicians required for locomotive operation, communications and accounting	6 months to 2 years
Ministry of Roads (Civil Aviation Department)	Institute of Civil Aviation	Training of engineering, radio engineering and communication engineering and flight control specialists	2 years
Civil Aviation Club	Special courses		
Imperial Organization for Social Services	School for the Blind (work and training institute)	Training and vocational rehabilitation of the blind	3 years
Red Lion and Sun Society	Children's homes, vocational schools, nursing and assistant nursing schools	Training of nurses and assistant nurses and technicians in the fields of mechanics, electricity, machine work and welding	1 to 3 years
Game Council of Iran	Mobile training units	Orientation and training of game wardens and hunters	3 months
Iran Cotton Organization	Courses for cotton specialists	Training of cotton specialists for cotton mills and laboratories	2 years
Ghazvin Development Organization	—	Training of extension workers in home economics	
Fisheries Organization	Ichthyological Institute	Training of ichthyologists and laboratory workers, as well as provision of technical personnel required by the Fisheries Organization	
Iran Statistical Centre	Special courses	Training of statisticians for Government and non-Government organizations	—
Customs Administration	Courses for employees	—	—

for scientific and research activities for university personnel, particularly younger personnel;

d. to stress the employment of professors of basic sciences from among Iranian graduates and, in cases of acute shortage, to employ them from Asian countries with which Iran enjoys friendly relations;

e. to exchange professors and students with outstanding foreign universities and to ensure the participation of Iranian researchers in international research activities;

f. to facilitate the participation of professors, associate professors and assistant professors in scientific conferences and refresher courses abroad;

g. to encourage university students, especially those studying in higher classes, by awards of scholarships, fellowships and prizes;

h. to award fellowships, scholarships and loans to outstanding students especially in fields required by the country;

i. to utilize the resources of university students for advancement of progressive social programmes such as teaching literacy classes, working in development and self-help groups, and participating in national development seminars.

j. to complete, equip and utilize universities' buildings started in the Third Plan and also to develop these for technical and scientific purposes during the Fourth Plan period as proposed by the universities concerned;

k. to provide additional funds for increase in the number of students studying technical and scientific fields in the universities.

.49 - In order to develop and encourage scientific research, after the establishment of the National Council for Scientific Research it will first be necessary to prepare a complete list of research units and institutes in Iran with an account of their activities, and then to establish priorities among various research projects with due regard to the social and economic requirements of the country now and in the future. These will include the preparation of a complete inventory of national resources, researches beneficial to agricultural development, human and animal health, reclamation of barren regions, water desalination and the exploration of marine resources, and researches concerning major national industries, such as the chemical, petrochemical, oil and electronics industries. The establishment of centres for technical and scientific documentation and of premanent contact with scientific and technical centres abroad will be important steps towards the advancement of scientific research in Iran. The enactment of laws stabilizing the employment status of researchers and ensuring their welfare is also absolutely essential. It is also important that domestic research institutes be encouraged by the assignment to them of some Government studies.

Distribution of development funds

50 - The distribution of funds in the public sector will be as shown in Table 10.

TABLE 10—DISTRIBUTION OF DEVELOPMENT FUNDS TO EDUCATION DURING THE FOURTH PLAN PERIOD (MILLIONS OF RIALS)

Type of activity	Capital expenditure	Current expenditure	Total
Kindergarten education	—	6	6
Primary education	2,980	9,592	12,572
Planning Institute and Educational radio and television	75	42	117
Campaign against illiteracy	—	2,959	2,959
Academic guidance courses	2,763	3,007	5,770
Comprehensive and combined vocational training	888	1,100	1,988
Theoretical secondary education	415	685	1,100
Technical and vocational training	1,136	1,052	2,188
University education	5,450	550	6,000
Scientific research	150	150	300
On-the-job training	765	1,035	1,800
Sending of students abroad	—	200	200
Total	14,622	20,378	35,000 (1)

(1) It is estimated that in addition to the Rials 35 billion shown above, which will be allocated to education out of the Government's development budget, the private sector will also spend about Rials 8 billion on education. Allocations for training some personnel for certain large agricultural and industrial projects are provided for in these projects themselves. (See paragraph 33.) Funds required for the employment of replacement teachers and salaries for teaching staff at new Government universities will be provided for from the current budget (See paragraph 30.)

CHAPTER 18

CULTURE AND THE ARTS

INTRODUCTION

1 - Attention will be paid during the Fourth Plan period to the development of culture and the arts in view of their effect in strengthening the foundations of national unity, so that the cultural heritage of Iran is properly understood and that this great national wealth is enriched as much as possible. Culture and the arts are not only effective in the refinement of taste, the stimulation of sentiments and the creation of common interests among various social groups, but also have appreciable economic repercussions in raising the income of certain segments of the population, expanding domestic industry, attracting foreign tourists, and financially in increasing the national product.

PAST PERFORMANCE OF THE SECTOR

2 - During the Third Plan approximately Rials 700 million of public expenditure was earmarked for carrying out cultural and artistic programmes. Most of this amount has been used for the following projects and the remainder will be utilized by the end of the Third Plan:

Completion of the headquarters building of the Ministry of Culture, completion of Rudaki Concert Hall, completion of the Ethnological Museum building, completion of art workshops in Esfahan, construction of a school of ballet, purchase of 17 mobile cinema units, with films and spare parts, completion of the staff of the Tehran Symphony Orchestra, assistance in equipping the 25th Shahrivar Hall.

3 - In the field of artistic achievement, the holding of various exhibitions in Iran and abroad may be mentioned, the most important of which have been the following:

Participation in the Universal Exhibition at Montreal; holding of the Exhibition of Persian Art in London; participation in the International Exhibition of Children's Drawings and Paintings; holding of the Fifth Asian Biennial in Tehran with the participation of Turkish and Pakistani artists; holding of an Iran Week in Turkey; participation in the eighteenth and nineteenth International Exhibition of Children's Book in Ankara; participation in the International Exhibition of Children's Books in New Delhi; holding of the International Conference of Musicology in Iran; holding of the Shiraz Arts Festival, with the co-operation of National Television of Iran.

In respect of television broadcasts, concerts, music, ballet and other art programmes, the following may be mentioned:

Holding of the Festival of the Theatre and staging of original Iranian plays in the 25th Shahrivar Hall; various cultural programmes in Army garrisons in different parts of the country and provincial capitals; various art exhibitions and concerts at the Hall of the Faculty of Letters, the Youth Palace and other cultural societies in Tehran; organizing various cultural programmes abroad; and in general the execution of educational and cultural programmes on official national and state occasions and on television.

4 - In view of the importance of culture and the arts a Ministry of Culture was established in 1343 to centralize all cultural pursuits. After the establishment of this ministry, the following agencies were also established so that the various cultural and artistic programmes could be carried out in the best possible way:

- The National Organization for the Preservation of Ancient Monuments.
- The National Organization for Iranian Folklore.
- The Board of Trustees of Libraries.
- The High Council of Culture.

THE GENERAL OBJECTIVES OF THE FOURTH PLAN FOR CULTURE AND THE ARTS

5 - The objectives of Arts and Culture programme during the Fourth Plan period are as follows:

a. advancement of the arts;

b. raising the standard of public culture by proper use of audio-visual facilities;

c. strengthening the basis of ethnic inter-relationships and raising the standard of appreciation of national culture and raising the level of artistic taste;

d. publication of the results of studies, as well as of cultural and artistic works;

e. training of artists and experts in various artistic fields;

f. providing conditions conducive to originality and creative talent in art and literature, on the basis of national traditions;

g. preservation of national heirlooms and ancient and historical monuments in order to attract foreign and domestic tourists;

h. increasing the number of teachers, professors and other art school and workshop staff from 625 to 1,865 and the number of art students from 845 to 1,345 to meet the expected requirements.

EXECUTIVE POLICIES

6 - In order to attain the above objectives, the policies and basic measures to be taken by the Ministry of Culture during the Fourth Plan period will be as follows:

a. encouragement of artists to create valuable works and the exhibition of such works at major international art centres; co-operation with regional and international cultural organizations by executing programmes and holding art exhibitions; preparation of information, statistics, documents and essays on cultural subjects; drawing up and implementing exchange programmes in cultural and artistic fields.

b. encouragement of translators to translate outstanding artistic and literary works; research and selection of the best works, including printed books and manuscripts relating to Iranian culture and literature and the publication of such works.

c. supervision of the affairs of art students who have been sent abroad, and assisting them; taking appropriate measures for artistic and cultural training by strengthening counselling and cultural centres abroad.

d. preparation of educational, documentary and news films for all provinces and examination of conditions in film companies, studios and laboratories and evaluation of their competence; assisting the promotion of photography and cinematography in Iran by taking appropriate measures to improve the quality of Iranian films and training qualified personnel for various jobs in the cinema industry; establishment of criteria for quality film production; provision of technical facilities necessary for the promotion of cinematography; presentation and promotion of national films of merit and awarding of prizes in special film festivals.

e. provision of audio-visual facilities required in education by establishing audio-visual centres in the provinces and providing a service of mobile film units in remote areas.

f. expansion and development of public libraries in the Ministry of Culture and supervision of implementation of matters concerning public libraries.

g. carrying out new excavations to discover archaeological objects, restoring historical buildings and various ancient and artistic monuments in order of priority; research into ancient monuments; preparation of an archaeological map of Iran.

h. encouraging public participation in the preservation of historical monuments; repair of such buildings and monuments through the National Organization for the Preservation of Ancient Monuments, which has been established for this purpose; centralizing of all relevant activities in this Authority and obtaining the co-operation of the police for the protection and preservation of such monuments.

i. assisting the implementation of the Iran-Unesco comprehensive scheme for the preservation of ancient and historical monuments which are of touristic importance and the gradual financing of the costs of the scheme by making charges for visiting such monuments and from other revenue from tourism.

j. protecting the rights of authors and creators of artistic works.

k. adapting national arts and handicrafts to the requirements of new markets.

l. research into and revival of forgotten or declining national arts.

m. establishment of cultural centres in towns and villages for the purpose of fostering artistic talent and propagating various cultural programmes throughout the country and revival and promotion of rural culture.

n. efforts to advance and develop the art of printing in Iran.

o. stressing the practical aspects of various artistic fields in academic education and recommending the adjustment of higher education curricula to the present requirement for arts and culture.

p. research into national customs and traditions, folk literature, collecting specimens of local handicrafts, household effects and national and regional costumes, housing them in museums and publishing the results of research in this field.

q. completion of the present museums and encouragement of local authorities and the public to establish musuems.

CREDITS

7 - Development credits for the Fourth Plan for culture and the arts have been included in the Education Chapter at Rials 1.8 billion, of which 300 million Rials has been allocated to the Iran-Unesco project for tourism and the preservation and restoration of historic monuments. (See Table 1.) These credits are in addition to the amounts allocated in Chapter Sixteen to part of the construction of buildings required by the Ministry of Culture, in Chapter Twenty-one to the establishment of social services centres in villages and rural districts (which can be used for the establishment of cultural centres and exhibitions of native handicrafts), in Chapter Nineteen for the introduction of ancient Iranian arts to tourists, and in Chapter Eight for the promotion and development of handicrafts, carpets and local industries.

Table 1 shows the breakdown of projects in terms of executive agencies. In other tables, credits are broken down on the basis of field of activity.

TABLE 1 — DISTRIBUTION OF DEVELOPMENT CREDITS AMONG VARIOUS ACTIVITIES OF THE MINISTRY OF CULTURE
(THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Projects of the Department-General of Archaeology, Museums and Preservation of Historical Buildings	280,000
Projects of the Department-General of Arts Training	111,000
Projects of the Department-General of Cinematography	401,500
Projects of the Department-General of Audio-Visual Aids	150,000
Projects of the Department-General of Libraries	71,000
Projects of the Department-General of Cultural Centres	130,000
Projects of the Department-General of Publications	40,000
Projects of the Department-General of Artistic Activities	195,000
Projects of the Department-General of Cultural Relations	121,500
Total development expenditure of the Ministry of Culture	1,500,000
Iran-Unesco comprehensive scheme (to be carried out by the respective committee)	300,000
Grand Total	1,800,000

TABLE 2 — DEVELOPMENT CREDITS FOR PROJECTS OF THE DEPARTMENT-GENERAL OF ARCHAEOLOGY, MUSEUMS AND PRESERVATION OF HISTORICAL BUILDINGS
(THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Research and preparation of an archaeological map of Iran	20,000
Establishment of new museums	20,000
Archaeological excavations	180,000
Ethnological Museum windows	20,000
Encouragement and propagation of public culture	40,000
Total	280,000

TABLE 3 — DEVELOPMENT CREDITS FOR PROJECTS OF THE DEPARTMENT-GENERAL OF ARTS TRAINING (THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Establishment of Arts Training Demonstration Centres in Tehran	100,000
Establishment of an organization for research into and instruction in national local dances	7,500
Completion of workshop for the repair of musical instruments and purchase of various instruments for conservatories of national and international music	3,500
Total	111,000

TABLE 4 — DEVELOPMENT CREDITS FOR PROJECTS OF THE DEPARTMENT-GENERAL OF CINEMATOGRAPHY (THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Provision of new cinematographic and photographic technical facilities	50,000
Purchase of new cinematographic and photographic facilities to replace obsolete facilities	24,000
Establishment of a demonstration photographic studio	30,000
Preparation of colour and black-and-white documentary films	75,000
Preparation of film scenarios by encouraging qualified writers	7,500
Establishment of a co-operative fund for assisting in the production of films at private studios	100,000
Establishment of an equipped film production studio	100,000
Establishment of a film library and a cinematographic technical library	15,000
Total	401,500

TABLE 5 — DEVELOPMENT CREDITS FOR PROJECTS OF THE DEPARTMENT-GENERAL OF AUDIO-VISUAL AIDS (THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Expansion and completion of mobile cinema units	75,000
Completion of audio-visual technical facilities	15,000
Establishment of a film library and purchase of educational, training and artistic films	60,000
Total	150,000

TABLE 6 — DEVELOPMENT CREDITS FOR THE PROJECTS OF THE DEPARTMENT-GENERAL OF LIBRARIES (THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Librarian training centre	5,000
Purchase of books	5,000
Arranging of book exhibitions	3,000
Publication of a bibliography of manuscripts and printed books	3,000
Preparation of uniform index cards for public libraries	3,000
Repairs to existing National Library building	2,000
Construction of a new National Library building	50,000
Total	71,000

TABLE 7 — DEVELOPMENT CREDITS FOR PROJECTS OF THE DEPARTMENT-GENERAL OF ADMINISTRATIVE AFFAIRS (CULTURAL CENTRES) (THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Construction of cultural centres in provincial cities	130,000
Total	130,000

TABLE 8 — DEVELOPMENT CREDITS FOR PROJECTS OF THE DEPARTMENT-GENERAL OF PUBLICATIONS (THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Technical and artistic training and research in printing	5,000
Production, printing and purchase of books and publications in order to encourage writers, editors, translators and publishers	20,000
Completion and extension of Ministry's printing press	15,000
Total	40,000

TABLE 9 — DEVELOPMENT CREDITS FOR PROJECTS OF THE DEPARTMENT-GENERAL OF ARTISTIC ACTIVITIES (THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Establishment and equipment of various artistic groups in Tehran and provinces	140,000
Completion of equipment of the Rudaki Concert Hall	10,000
Establishment of a sound recording and record producing centre and a national sound recording library	45,000
Total	195,000

TABLE 10 — DEVELOPMENT CREDITS FOR PROJECTS OF THE DEPARTMENT-GENERAL OF CULTURAL RELATIONS (THOUSANDS OF RIALS)

Title of Project	Credits Allocated
Establishment of cultural centres in Hyderabad, Sind and Peshawar and completion of libraries and permanent exhibitions at counselling and cultural centres abroad	20,000
Completion and repair of counselling and cultural centre in Paris in order to establish a library and an auditorium	7,500
Establishment of a cultural centre in Istanbul	1,500
Publications in English and French	5,000
Construction of the Iranian pavillion at the Venice Biennial	7,500
Reviving and strengthening Persian in neighbouring countries (Pakistan)	80,000
Total	121,500

CHAPTER 19

TOURISM

INTRODUCTION

1 - As a result of modern industry-based living and the relative rise in personal incomes, especially in the developed countries, travel is no longer regarded as a luxury exclusively enjoyed by a small number of wealthy individuals, but has become a public and social service. This has led to a great increase in tourism throughout the world, and tourist activity now forms a substantial part of all international exchanges. For these reasons, Unesco Resolution No. 33 dated December 16, 1963, stated that tourism was an important and effective factor in national economic growth and international trade, noted its numerous cultural, social and educational effects, and stressed its valuable role in fostering international understanding. The resolution noted that the development of tourism largely depends on Government intervention and efforts and that without such intervention tourism cannot expand in developing countries.

2 - The effects of tourism are as follows:

a. The development of tourism raises a country's foreign exchange income. At present income from international tourism exceeds fourteen billion dollars and every country is doing its best to obtain the maximum possible share from this source of income.

b. The effect of tourism in the national economy is not limited to obtaining foreign exchange income; it activates the economy by encouraging activities in construction (the construction of hotels, motels and tourist resorts), transportation and the supply of goods required by tourists.

c. The arrival of large groups of foreign tourists travelling to different parts of a country directly or indirectly raises the level of national employment substantially.

d. Visits by foreigners and their contacts with new cultures, civilizations and societies are an aid to international understanding. Direct contacts between foreign travellers and the native population also increase the latter's understanding of other cultures and helps to expand their intellectual horizons.

e. The development of domestic tourism is also a dynamic factor in the national economy and in many instances stimulates economic activity in different parts of the country. The development of domestic tourism may also reduce luxury and pleasure trips to other countries.

f. The development of domestic tourism also serves to acquaint the people with their historical heritage and the cultural background of their own country, and strengthens bonds of friendship among the inhabitants of different parts of the country, thereby achieving useful social and intellectual results.

PAST PERFORMANCE OF THE SECTOR

3 - Owing to its geographical location Iran has been visited by foreign travellers from ancient times, but the establishment of a special organization for the attraction of tourists and centralization of tourist affairs first occurred during the reign of Reza Shah the Great, when a department of tourist affairs was formed in the Ministry of Interior. The department was replaced in 1320 by the High Council for Tourism, and in Farvardin, 1342, the Iranian National Tourist Organization was established in accordance with a decree of the Council of Ministers.

4 - The Iranian National Tourist Organization is therefore a young organization, less than five years old, but in this short period it has nevertheless managed to develop the tourist industry of the country to a remarkable degree. The following table shows increases in the numbers of foreign tourists visiting the country.

TABLE 1 — INCREASE IN NUMBERS OF FOREIGN TOURISTS VISITING IRAN DURING THE THIRD PLAN PERIOD

Year	Number of foreign tourists	Percentage increase over previous year
1341	74,000	—
1342	87,000	17.5
1343	128,000	46.8
1344	135,000	6.0*
1345	196,000	44.7

- The reason for the reduction in the rate of increase of foreign tourism in 1344 was presumably the sudden outbreak of a cholera-type disease, which was completely eradicated in 1345

The foreign exchange income from foreign tourism to Iran in 1344 has been estimated at about $21 million.

5 - Parallel with the economic growth of the country, domestic tourism has also expanded, but there are still no accurate statistics in this field. On the basis of an estimate of traffic, about 1,620,000 passengers visited the Caspian sea area in 1344. In the same year the volume of rail passengers was about three million, while that of air passengers was almost 246,000. This is a considerable volume of travelling and one which will surely increase still more with improvements in the country's social conditions and economic growth.

6 - According to the latest statistics, there are 349 hotels with about 7,200 rooms and 15,900 beds in Iran. Of this number, 44 hotels, with 1,900 rooms and 3,400 beds, are located in Tehran.

7 - During the Third Plan period efforts have been made to expand and improve tourism in the country and these may be summarized under four headings, installations, facilities, training, and publicity, as follows:

a. Tourist installations

The most important measures taken in this field are:

i. the construction or assistance in the construction of 45 hotels and motels with a capacity of about 1,100 rooms in various towns, all of which will probably be completed by the end of 1347;

ii. the establishment or assistance in the establishment of nine restaurants in towns along major tourist routes;

iii. assistance in the provision of equipment for 36 roadhouses and cafés;

iv. assistance in the construction of 12 roadhouses along major tourist routes;

v. assistance in the construction of 100 beach cabins at Bandar Pahlavi.

b. Tourist facilities

In this field many measures have been taken, the most important of which are the following:

i. the establishment of information bureaus at frontier posts and in cities of major touristic interest;

ii. the provision of banking and customs facilities;

iii. the supervision of tourist guides;

iv. the preparation of practical measures to exercise legal and practical supervision over the affairs of hotels and travel agencies;

v. the investigation of complaints made by tourists.

c. Training

In the field of training the most important measures have been the following:

i. the establishment of various classes for training hotel staff in Tehran and other cities;

ii. the establishment of courses for training tourist guides in Tehran, Esfahan and Shiraz;

iii. the establishment of correspondence courses for tourist guides who are unable to attend classes.

d. Publicity

In this field, measures include the preparation of models, various schemes for squares and parks, invitations to influential personalities in tourist affairs, the publication of articles in the domestic and foreign press and of 17 brochures, 15 guide books and 10 maps in various languages, participation in 13 exhibitions, and the preparation and distribution abroad of more than 3,000 photographs, 80 illuminated signs, about 1,000 slides and a short film of different views, ancient monuments and handicrafts.

8 - The development of tourism is faced with many different types of problems, the most important of which are the following:

a. the inadequacy of financial resources for the expansion and equipment of tourist facilities in Iran;

b. the lack of facilities such as asphalted roads, road-houses, restaurants, petrol stations and road signs along tourist routes;

c. the lack of experienced and trained personnel in tourist institutions, such as hotels and travel agency staff, tourist guides and tour operators;

d. the limited number of large first-class hotels in relation to the increasing demand for such accommodation;

e. the lack of experienced tourist agencies with a wide network of domestic and foreign branches and trained personnel capable of organizing group tours in Iran.

OBJECTIVES OF THE FOURTH TOURISM PLAN

9 - The objective of the Fourth Plan will be to increase the number of tourists in 1351 to about 520,000, as follows:

Place of Origin	No. of Tourists
Eastern countries (especially India, Pakistan and Afghanistan)	40,000
Arab countries	110,000
Europe and U.S.A.	350,000
Other countries	20,000
Total	520,000

Another objective is to increase the average duration of stay of foreign tourists to at least eight nights.

Another objective is the provision of equipment and facilities at points and along routes which are of interest to domestic tourists, especially along the Caspian coast region, which is the major summer resort area for such tourists.

SPECIFIC PROGRAMMES

10 - Tourism programmes in general cover five fields, installations, publicity, facilities, training, and organization. Owing to the relationship of facilities and organization programmes to current Government activities, these programmes are not dealt with in the investment programmes, while the training programme is included in Chapter Eighteen. The remaining two programmes are dealt with below.

11 - The target in the field of installations will be to provide accommodation and places of recreation and entertainment for foreign and domestic tourists. It will include the following specific programmes:

a. Hotel construction programme

i. Provision of accommodation for foreign and domestic tourists involving the construction of 8,000 hotel beds by the end of the Fourth Plan. This number will involve 5,000 rooms, of the following categories: 800 luxury, 1,600 four-star, 1,000 three-star, 700 two-star and 900 one-star.

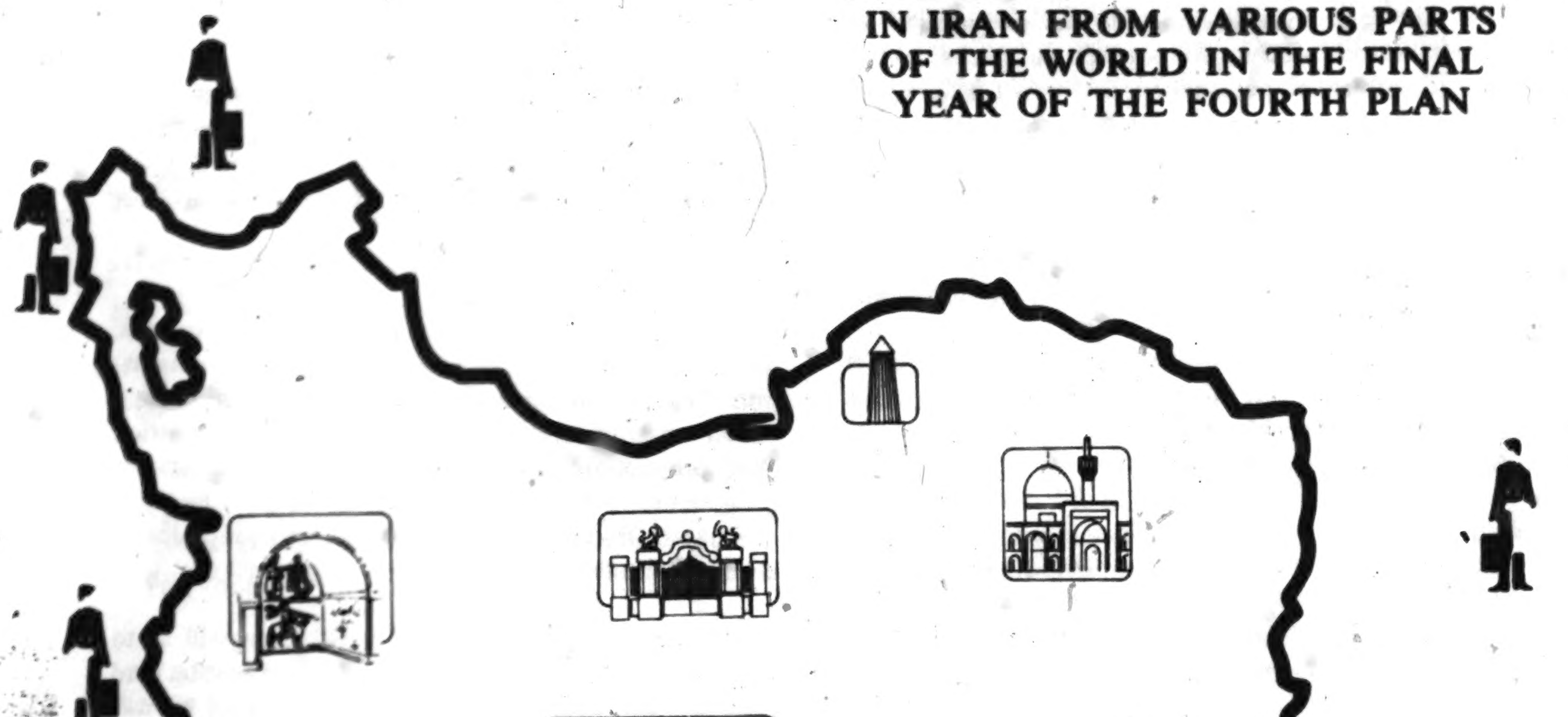
ii. Some existing hotels and guest-houses should also be re-equipped and renovated, and loans will be extended to their owners for this purpose.

b. Programmes for the equipment and renovation of 100 road-houses located on regional routes.

c. Establishment of 60 motels in towns located along tourist routes which do not at present possess adequate accommodation for foreign tourists.

d. Establishment of tourist camps. To provide accommodation for the large numbers of people who travel to

FORECAST OF TOURIST ARRIVALS IN IRAN FROM VARIOUS PARTS OF THE WORLD IN THE FINAL YEAR OF THE FOURTH PLAN



U.S.S.R., Afghanistan & Pakistan	40,000
Europe & U.S.A.	350,000
Arab Countries	110,000
Other Countries	20,000

certain places at specific seasons, 20 camps with restaurants and a total capacity of 600 tents (4-8 people to each tent) will be established.

e. Establishment of youth hostels. To provide suitable low-cost accommodation for young people and students the establishment of three hostels with a capacity of 400 beds is envisaged.

f. Establishment of tourist centres. Six tourist centres will be established at the following locations: Minu (Salbukh) Island, Karand, Kelardasht, Gajereh, Larijan and Sar-ein. Each tourist centre, depending on its location, will have facilities such as hotels, motels, restaurants, playgrounds, swimming pools, shops, therapeutic baths.

g. Establishment of pilgrim houses. It is planned to establish pilgrim houses in the pilgrimage centres of Mashhad and Ghom with a total capacity of 500 rooms.

h. Establishment of forest parks. Ten forest parks will be established for the use of tourists and travellers.

12 - In the field of publicity, the target is to encourage foreigners to travel to Iran and to encourage Iranians to travel inside the country and to behave in a proper manner in their contacts with foreigners. Specific publicity programmes during the Plan period will be as follows:

The publication of 75 brochures, 30 guide-books, 75 posters, 5 calendars, and production of a forty-minute colour film; the organization of 20 domestic exhibitions and one mobile exhibition; participation in 20 international exhibitions; the preparation of photographs and maps; press, radio and television advertising; utilizing the services of foreign advertising agencies; arranging of cultural festivals.

EXECUTIVE POLICIES

13 - In preparing the five-year tourism plan, the following principles have been borne in mind:

a. Emphasis on increasing the number of foreign tourists.

b. In order to make the maximum use of present and future investments, it has been decided to direct tourism, as far as possible, towards regions and routes where economic infrastructure already exists, so as to avoid the need for new investment in infrastructure in remote areas.

c. In this programme the major share has been assigned to private investment, but since the rate of return on investment in the field of tourist installations is relatively low as compared with other activities, the Government should inevitably intervene either by direct investment or by extending loans and credits. The use of public funds in the development of tourist facilities will be made only in essential cases, where private investors are unable or unwilling to invest.

14 - The executive policies of the Fourth Plan for tourism are as follows:

a. maximum co-operation with Government agencies involved in tourism (such as the Ministry of Foreign Affairs, the Ministry of Information, the Ministry of Culture, the Ministry of Roads and the Police and Customs authorities), to provide services for tourists;

b. maximum co-operation with municipalities so as to encourage them in meeting the needs of foreign tourists;

c. general supervision of hotel affairs and efforts to raise standards, and the extension of loans for this purpose;

d. review of regulations concerning the extension of loans for hotel construction and the encouragement of individuals and firms to invest in this field;

e. measures to lower hotel rates by granting certain legal privileges, such as exemption from the commercial benefice tax, or by extending long-term, low-interest credits;

f. improving the standards of hotels and restaurants as regards organization, technical matters and trained manpower;

g. providing technical training and instruction in professional skills to those engaged in the tourist industry;

h. compulsory registration of travel agencies and exercise of constant supervision over their methods of operation and commission rates;

i. advising travel agencies on arranging sight-seeing tours in Iran for groups of foreign tourists;

j. economic and technical advice to individuals or firms investing in the tourist industry;

k. use of tourist films at home and abroad for training purposes in schools;

l. co-operation with the Ministry of Economy's Centre for Small-scale Industry and more effective presentation of the products of the Centre to foreign tourists by the establishment of exhibitions and stores at all major hotels and tourist centres;

m. extablishment of duty-free stores at international airports in Iran for the sale of goods to transit passengers;

n. adoption of measures to stabilize prices and improve the quality of goods of interest to tourists by identifying reliable stores, awarding them special signs and introducing them to tourists;

o. promoting the use of Iranian products in the interior decoration of hotels and restaurants, and other places visited by foreign tourists;

p. proper presentation of all aspects of Iranian culture and civilization, such as plays, folklore, souvenir items, food and drink;

q. adoption of appropriate measures for the sale and export of antiques.

PUBLIC AND PRIVATE INVESTMENT IN TOURISM

15 - In addition to allocations under Chapter Eighteen for the training of staff in tourism and allocations for organization and facilities, which will be made in the Government's current budget, development expenditure on tourism by the public sector during the Fourth Plan period will be as follows:

	Millions of Rials
1 — Installations	3,600
2 — Publicity	200
Total	3,800

It is envisaged that in the field of installations total private investment will amount to about Rials 2,900 million (Table 2). Expenditure on publicity will be as shown in Table 3.

TABLE 2 — PROGRAMMES AND EXPENDITURE ON INSTALLATIONS (MILLIONS OF RIALS)

Type of programme	Total investment	Public sector	Private sector
1. Hotel construction	4,630	1,854	2,776
2. Establishment of guest-houses in towns	200	150	50
3. Establishment of road-houses and cafés	35	22	13
4. Establishment of tourist centres	1,350	1,350	—
5. Establishment of youth hostels	20	20	—
6. Establishment of camps	25	18	7
7. Establishment of pilgrim-houses	90	36	54
8. Establishment of forest parks	150	150	—
Total	6,500	3,600	2,900

TABLE 3 — DISTRIBUTION OF EXPENDITURE ON PUBLICITY (MILLIONS OF RIALS)

Type of programme	Total expenditure
Publication of brochures	45.0
Publication of guide-books	4.5
Publication of posters	3.7
Publication of calendars	3.0
Publication of post-cards	0.5
Production of films	8.0
Organization of exhibitions in Iran	4.0
Organization of mobile exhibitions	10.0
Participation in international exhibitions	20.0
Photography	4.9
Publication of maps	12.4
Press advertising	8.0
Utilizing the services of foreign advertising agencies	32.0
Art festivals	10.0
Window displays	2.0
Investment abroad	30.0
Radio and television programmes	2.0
Total	200.0

CHAPTER 20

HEALTH

INTRODUCTION

1 - The subject of the present chapter, health, covers various preventive activities including immunization, campaigns against specific diseases, environmental sanitation, improved nutritional standards, education of the public in health matters, and medical care. These services should be made available to the public in every region of the country in a comprehensive and co-ordinated manner which will obviously require the training of professional staff, research and planning.

The purpose of providing these services is to raise health standards, increase human strength and life expectancy, prevent epidemics and cure diseases promptly.

In this chapter, health means not only physical well-being but psychological and social stability as well.

2 - Until recent years expenditure on health was generally regarded as consumption expenditure on the grounds that the effects of health services were to be seen in individual satisfaction and prosperity. Today, however, economists are unanimous that public health measures are not only beneficial at the individual level, but also have indisputable economic effects. In other words, they are a kind of investment made in the growth and development of human resources and in the proper utilization of such resources, which increases the working power of human beings, reduces physical and mental disabilities, restores strength lost by the sick and turns them into effective and productive individuals. By preventing and reducing the harmful effects of rapid economic and industrial growth and urbanization, the general level of incomes and the national income will be increased. The expansion of health services in the country will also be an important instrument for extending social justice, ensuring an equitable distribution of income, and finally for the promotion of social mutual assistance and self-help programmes.

In view of the foregoing, planning for economic development should pay special attention to health programmes, which should be given appropriate recognition among other sectors as far as the allocation of credits is concerned, in view of the direct effect they have on the protection and increase of manpower and the maximum utilization of human resources.

PAST PERFORMANCE OF THE SECTOR

3 - For the first time in the history of social and economic planning in Iran, health activities were treated comprehensively in the Third Plan, and in particular, attention was given to the problem of co-ordinating personnel training with other public health activities.

4 - One of the basic objectives of the Third Plan was to co-ordinate the different organizations dealing with medical care, thereby making the best use of existing resources. To this end, the Plan envisaged the establishment of a High Council of Health, with the participation of all responsible authorities. However, in practice, the establishment of the Council was faced with certain difficulties, and as a result the co-ordination of all preventive and medical care activities, which was envisaged by the Third Plan, did not fully materialize. Nevertheless, during the execution of programmes, by applying the criteria of the Plan and the budgets, some co-ordination was brought about among organizations responsible for medical care for projects financed from development funds, at least in respect of the location of health facilities.

5 - The other main objective of the Third Plan was the equitable distribution of medical care services by introducing planning discipline for all the organizations concerned under the guidance of a Medical High Council. Although the Council was not established, the project-formulating units, by means of the rational distribution of medical services within their areas, managed not only to stop the further unequal distribution of these services but also to take effective measures

in many places to make up for relative shortages of these services. A comparison of the ratio of hospital beds in certain locations to the population they served in the years 1341 and 1346 indicates that this ratio, on the basis of the criteria established by the Third Plan, has not changed in respect of Tehran, Rey and Shemiran but in other places the ratio of hospital beds to population has increased by 10 to 30 per cent.

6 - One of the most important acts of the Third Plan period has been the creation (in 1343) of the Health Corps. It consists of physicians and high school graduates who spend the period of their military service serving in semi-mobile medical units for the purpose of dealing with medical care problems and raising health standards in rural areas. The Health Corps services have had a marked effect on a more equitable distribution of medical care services and the extension of preventive medicine and medical care in rural areas of the country to the extent that by carrying out this programme the percentage of rural population covered by out-patient medical care has increased from 25 to 45 per cent. (Preventive and medical care services are made available by the Health Corps to villagers twice a week.) Besides the Health Corps, for the purpose of expanding medical care services in rural areas, 206 rural health clinics (184 financed by development funds and 22 by local health councils) have been established during the Third Plan period. If each Health Corps unit is considered the equivalent of one clinic, and assuming that by the end of the Third Plan there will be a total of 350 units, then the number of new clinics created during the Third Plan period will amount to 606. This is more than two and half times as much as the Third Plan target, which was for 200 new rural health clinics.

7 - In the matter of transferring medical care activities to the public and avoiding a rapid escalation of direct obligations on the part of the Government, the Third Plan recommended that medical care units should gradually be turned over to major social organizations. To this end, the establishment of 153 rural clinics (of the above total of 206 clinics) and 950 hospital beds (of the 4,500 hospital beds financed from development funds) was entrusted respectively to the Imperial Organization for Social Services and the Red Lion and Sun Society of Iran with the cost of construction and equipment being met from development funds, while the responsibility for operating and maintaining clinics and some hospitals was entrusted to the two organizations. Meanwhile, the Ministry of Health, in implementing the 1337 Health Law, is transferring treatment activities to local health councils. This transfer has already taken place in 125 out of 145 districts involved, and preparations have been made for the transfer to take place in the remainder.

8 - In regard to the expansion of the medical care network in towns, the Third Plan envisaged the establishment of about 10,000 hospital beds (6,000 in the public sector and 4,000 in the private sector).* It is envisaged that by the end of the Plan 9,200 new beds will be ready for use (4,500 in the public sector and 4,700 in the private sector) which means that the public sector fulfilled 75 per cent of its target and the private sector 117 per cent, and the combined target was 92 per cent fulfilled. Meanwhile, at the end of the Third Plan period, there will be about 5,500 unfinished hospital beds. Progress in constructing and equipping these hospitals has not been fast enough because of the limited financial resources available, and they will not be completed by the end of the Third Plan.

9 - In view of the importance of preventive programmes the Third Plan recommended that the Ministry of Health should gradually limit its duties to preventive measures, the administration of special hospitals, such as leprosy and T.B. sanatoria and mental hospitals, the planning and co-ordination of public health affairs, the establishment of standards for hospitals, and the supervision of medical and health affairs. The Ministry of Health has successfully begun to achieve this goal both by expanding its network of preventive medicine and transferring medical care activities to health councils. The increase in development expenditure on the prevention of disease and control of contagious diseases from 43 per cent to 62 per cent of the credits of the Medical and Health chapter of the Third Plan and the reduced development expenditure on the programmes of hospital and clinic construction and equipment from 45 to 29

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* The private sector includes charity organizations, public social organizations and social insurance schemes.

per cent of total credits are indications that the Ministry of Health has directed its activities towards attaining this goal.

10 - The other objective of the Third Plan was the extension of activity concerning environmental sanitation, particularly in rural areas of the country. In this respect, it has been recommended that the Ministry of Health should undertake supervisory responsibilities and carry out environmental sanitation activities on a demonstration basis, but in view of the basic importance of this programme in the reduction of contagious diseases and the fact that no separate responsible organization was established during the Third Plan period, the Ministry of Health was unable to limit its responsibility in this field to supervision alone and thus leave the experienced personnel at its disposal unutilized. While supervising environmental sanitation activities the Ministry therefore also carried out extensive executive work, which is summarized as follows:

Provision of piped water in 612 villages, drilling of 28 deep wells and 4,332 shallow wells, repair of 2,376 water pumps, sterilizing the water of 3,389 ponds and reservoirs, taking 16,600 samples of water for bacteriological and chemical tests, disinfecting 15.7 million cubic metres of water, consumption of 135,000 kilograms of perchlorate, improving 4,740 springs and ghanats and building or making sanitary 2,840 public baths.

In recent years this work has been carried out with the co-operation of the Health Corps and the financial help of the public so that 75 per cent of the cost has been financed from development funds and 25 per cent from local resources.

11 - As regards the prevention and control of contagious diseases the vigorous pursuit of these activities throughout the country was recommended until they are completely eradicated. In this field, the measures taken during the Third Plan period have been as follows:

a. Small-pox campaign. The achievements in this field have been so effective that no case of small-pox has been reported in Iran since 1343. People are vaccinated every three years, and by the end of 1344, 23.6 million vaccinations had been made.

b. Campaign against the El Tor cholera epidemic. After the outbreak of this disease in Iran, widespread activities including diagnosis, treatment and quarantining, raising the level of public immunity, improving environmental sanitation and health education programmes were carried out by mobilizing all the manpower of health organizations in the country, and using the law-enforcement agencies. As a result, cholera disappeared the same year and no cases were reported in the years 1345 and 1346. Some 37 million cholera inoculations were given, three to each person.

c. Eradication of malaria. In this field, the objectives of the Third Plan were to protect the northern regions from the return of malaria, to extend malaria eradication operations in the remaining areas located on the northern part of the Zagros mountain-range and finally the preparation and implementation of research programmes in order to find ways and means of overcoming the difficulties of eradicating malaria in areas where the mosquitoe vectors have developed immunity to insecticides. The following measures were taken to achieve these objectives:

Geographic reconnaissance operations in about 46,000 villages with a total population of about 9,376,000; annual spraying of insecticides in 32,000 to 45,000 villages with a total population of about 5.6 to 7.5 million; controlling operations in 39,000 to 46,000 villages per year, with an approximate population of 8 to 11 million, by means of monthly or, if necessary, fortnightly visits; entomological, epidemiological and laboratory activities, carried out in conjunction with spraying, control operations, and the implementation of experimental programmes in order to discover methods effective in the southern regions of the country.

d. Campaign against trachoma. Research has been made into ways of controlling trachoma by the Institute of Health Research. Operations were started in 1344 by health centres and about 217,000 people have been examined, of whom 87,000 were found to be suffering from trachoma and about 46,000 from different forms of conjunctivitis, all of whom have received treatment.

e. Campaigns against other diseases. Useful measures have been taken in controlling other contagious diseases including diphtheria, tetanus, whooping cough, venereal diseases, tuberculosis, leprosy, brucellosis, and in expanding health services such as mother and child health, school health, mental health, oral and dental health, industrial health, laboratory services, nursing services, health education and the campaign against addiction to narcotics.

12 - The Third Plan paid particular attention to the training of technical personnel for the prevention and treatment of disease and the co-ordination of this training programme with the requirements of the above programmes. The Plan also recommended that the shortage of permanent technical personnel in certain fields should be compensated by auxiliary groups. In this respect, the measures taken have been most successful and in most fields the performance of the Third Plan has exceeded the original estimates. During the Third Plan period two faculties of dental surgery, one faculty of pharmacy, one faculty of public health, five nursing schools, 14 schools for assistant nurses, two schools for training assistant health engineers and a number of specialized courses, such as those for health engineering, sanitary and nutritional sciences, courses for training laboratory assistants, and a total of 10 courses for training assistant radiologists, physiotherapists, anaesthetists and pharmacists have been established.

13 - The Third Plan recognized the importance of medical and health research and in order to make the fullest use of the existing resources, had recommended the formation of a Council for Medical and Health Research. During the first two and a half years of the Third Plan medical and health research activities developed remarkably owing to the establishment of the Firuzgar Medical and Research Centre and of the Food and Nutrition Institute, the expansion of Malariology Institute into a Health Research Institute, the expansion and re-equipping of the Pasteur Institute and Cancer Institute and finally the expansion and re-equipping of medical faculty hospitals. But from 1344, onwards, because of economic stagnation and a slight reduction in the current budget, the expansion of medical and health research activities came to a standstill. It should also be mentioned that the co-ordination of medical and health research activities has been under the control of the Planning Committee of the Ministry of Health and has been limited to organizations financed from development funds.

HEALTH AT THE START OF THE FOURTH PLAN

14 - Owing to the lack of accurate statistics, the rate of incidence, number of fatalities and geographic distribution of different diseases is not known for sure, but on the basis of sample surveys taken, the general state of health in the country is believed to be as follows:

a. The incidence of contagious diseases: The commonest contagious diseases in Iran, per thousand of population, are as follows: dysentery of various forms, 26; influenza, 21.7; conjunctivitis other than trachoma, 9.5; measles, 4.25; trachoma, 4.2; malaria, 2.5; whooping cough, 2.22; mumps, 2.17; pulmonary tuberculosis, 1.11. The above statistics and other information indicate that the incidence of contagious diseases in Iran is still very great and constitutes one of the major health problems of the country. Some of these diseases, particularly gastro-enteritis, are transmitted through infected water in rural areas of the country and are mainly responsible for child mortality. Trachoma and various forms of conjunctivitis closely connected with unhealthy environment are widespread in the southern regions of Iran. Malaria has been eradicated north of the Zagros mountains, where the mosquito vectors are susceptible to insecticides, but transmission of the disease has not yet been definitely stopped, and contaminated areas are still to be found in these regions. South of the Zagros, owing to the resistance of mosquitoes to insecticides, the migratory habits of the tribal population and other factors, measures taken have not been very successful. Children's diseases such as measles, whooping cough and mumps are widespread and the resulting mortality rate is high. The incidence of tuberculosis is high, because of the favourable factors for its occurrence, and this constitutes a major health problem.

b. Causes of mortality. The main causes of mortality are as follows:

	(Cause of death per 1,000 cases of mortality)
1. Diseases of infants	152
2. Diseases of the digestive system	142
3. Diseases of the respiratory system	121
4. Infectious and parasitic diseases	94

c. Vital statistics of Iran are as follows:

Birth rate	44 per thousand
Mortality rate	18 per thousand
Infant mortality rate (up to age one)	160 per thousand
Rate of population growth	26 per thousand
Average life expectancy	46 years

d. State of medical services. By the end of the Third Plan there will be 31,000 beds, of which 23,500 will be general and maternity, and 7,500 beds will be for chronic diseases, such as tuberculosis, mental disorders, leprosy. In other words, by the end of the Third Plan there will be 11.7 beds per 10,000 population. The comparable figure is between 10 to 20 in neighbouring countries, excluding the USSR, and in advanced countries between 100 and 140.

The distribution of hospital beds by organization responsible for their administration is shown in Table 1.

The distribution of hospital beds in terms of quality of construction, equipment and personnel is as follows:

Hospitals with acceptable standards	22,800 beds
Hospitals with improvable standards	5,600 beds
Hospitals with unimprovable standards	2,600 beds

Out-patient treatment is carried out by 1,050 rural clinics and 400 Health Corps units, of which 240 clinics are affiliated to the Imperial Organization for Social Services and the remaining 810 clinics as well as the 400 Health Corps units are affiliated to the Ministry of Health. Rural clinics and Health Corps units cover about 50 per cent of the villages in the country as far as out-patient treatment is concerned.

Most of the Ministry of Health clinics are below standard in terms of construction and personnel and are not suitable for medical work.

TABLE 1 — DISTRIBUTION OF HOSPITAL BEDS BY THE END OF THE THIRD PLAN

	Number of beds	Percentage of total
Government and Government-affiliated organizations	19,900	64.2
Charitable organizations	5,300	17.1
Social Insurance Organization	3,000	9.7
Private sector	2,800	9.0
Total	31,000	100.0

e. Technical personnel and training. The manpower required and the capacity for training technical health personnel are as shown in Table 2.

f. Medical and health research. The Health Research Institute, the Pasteur Institute, the Food and Nutrition Institute, the Cancer Institute and the Razi Institute are responsible for research in health problems and the preparation of serums, vaccines and biological materials. Medical research is also carried out at all training hospitals of faculties of medicine and at the Firuzgar Medical Centre.

GENERAL OBJECTIVES OF THE FOURTH HEALTH PLAN

15 - The general objectives are to introduce qualitative and quantitative improvements into the medical care services, promote campaigns against diseases, develop environmental sanitation, raise nutritional standards and extend rehabilitation services in order to ensure the physical and mental health of society and consequently raise the productive capacity of the people, thus contributing to economic development.

SPECIFIC OBJECTIVES AND PROGRAMMES

16 - The basic objective of the Fourth Plan in the field of preventive medicine and public health is to secure at least the minimum health needs of the whole population. This objective is to be achieved by means of developing the public health network throughout the country. Health centres in cities and medical and health clinics in rural centres, with the help of Health Corps units supported by urban health centres, will be responsible for public health. During the Fourth Plan a total of 145 first, second and third category health centres will be established with the following major functions:

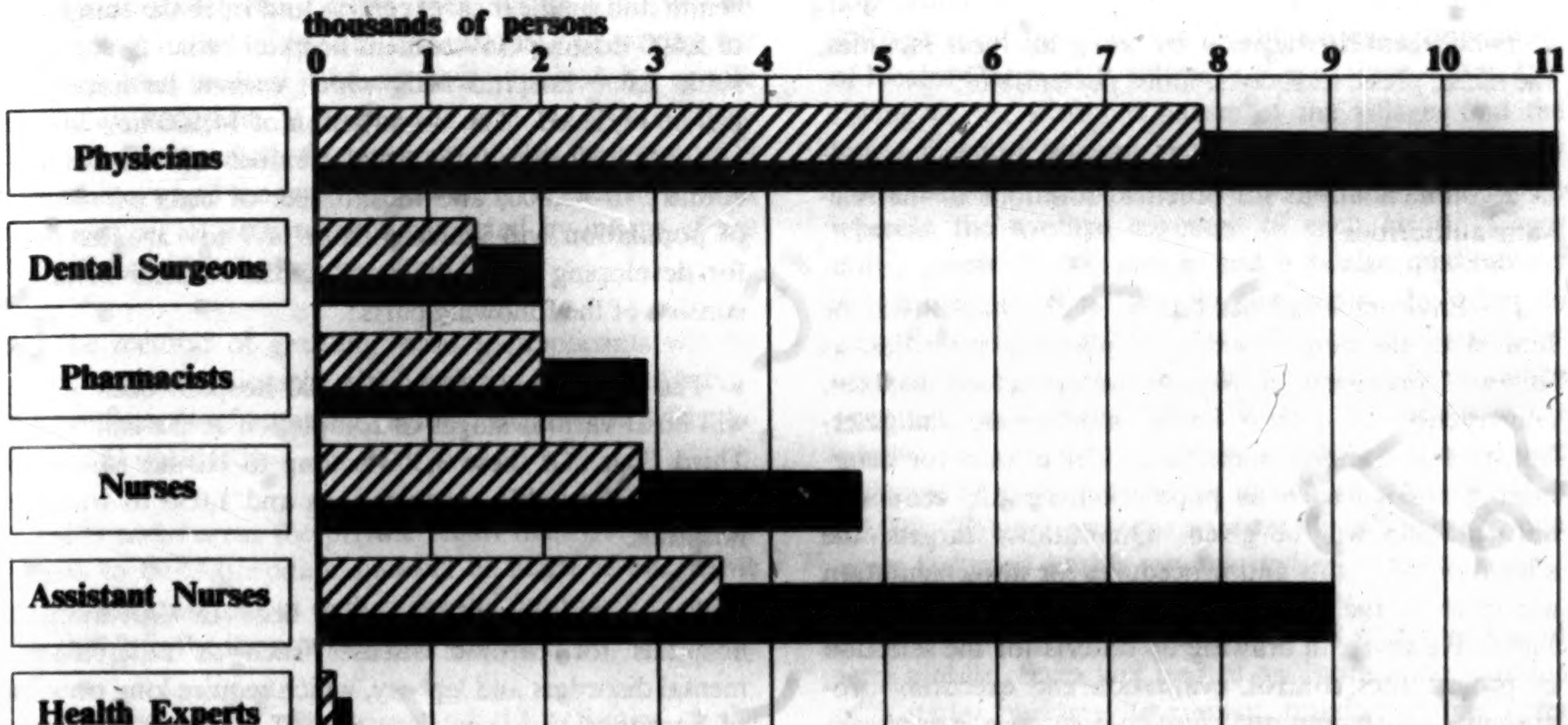
a. study and control of infectious diseases, mother and child health, family planning, school health, environmental sanitation, immunization, supervision of quarantine measures and supply of emergency assistance at times of disasters and accidents;

b. regular regional visits to discover the aetiology, diagnosis and preliminary treatment of diseases on an out-patient basis, for patients suffering from diseases

TABLE 2 — EXISTING MANPOWER AND CAPACITY FOR TRAINING TECHNICAL HEALTH PERSONNEL

Title	Number at the beginning of the Third Plan	Number at the end of the Third Plan	Number of graduates per year at the end of the Third Plan
Physicians	5,264	7,800	600
Dentists	1,000	1,400	80
Pharmacists	1,500	2,000	100
Nurses	1,500	2,800	360
Nursing assistants	1,000	3,600	730
Health technicians	20	60	24
Health engineers	20	60	20
Sanitarians	—	60	25
Assistant sanitarians	500	1,100	140
Hospital managers	15	75	14
Nutritionists	—	48	18

NO. OF TECHNICAL HEALTH PERSONNEL AT THE BEGINNING AND END OF THE FOURTH PLAN



such as tuberculosis, leprosy, venereal diseases and trachoma, with severe cases being referred to appropriate treatment centres;

c. public health education by using all local facilities, the radio, press, textbooks, films, posters, etc.;

d. study of regional health problems and submission of recommendations for practical solutions to the relevant authorities.

17 - Environmental sanitation. This chapter will be limited to the determination of planning priorities, as follows: provision of potable water, refuse disposal, construction of public baths, mortuaries, slaughterhouses and domestic sanitation. The criteria for determining regions such as population, health, economy, and self-help will be given. Quantitative targets, the allocation of credits and procedures for implementation are given in the chapters on urban and rural development. However, in drawing up criteria for the selection of project sites, control, evaluation and executing programmes continuous and close co-operation is necessary between the responsible units of the Ministry of Health and the Ministry of Development and Housing.

18 - Eradication of malaria. The eradication of malaria has run into a whole range of problems including the resistance of mosquitoes to insecticides, the migratory habits of the tribes, which have prevented full success being achieved. The financial resources and the period of time required to eradicate malaria completely is still not clearly established. Neither is it clear to what extent any restrictions on the present programme would jeopardize the successes achieved over the past years at great cost in financial and human resources. It is therefore imperative that the past achievements should be properly studied and evaluated and logical solutions found for the future.

Before the results of such a study are known the objective of this programme during the first years of the Plan should obviously be to consolidate the gains made, and that of the future should be based on the results of the study.

19 - In developing the network of urban medical facilities, the objective of the Fourth Plan is to establish 14,500 additional hospital beds and 20 mixed (public health and medical care) centres and raise the standards of 5,600 existing Government hospital beds. In addition some 2,600 hospital beds which cannot be improved will be replaced. The construction of 14,500 new hospital beds will bring the total number of beds in the country to 45,500, and the number of beds per 10,000 of population will increase from 11.7 to 15. The plan for developing the network of urban medical facilities consists of the following parts:

a. The completion of about 5,500 hospital beds which will be at various stages of completion at the end of the Third Plan. Of these 3,350 belong to Health Ministry, 1,100 to charitable organizations and 1,050 to training hospitals.

b. The establishment of 2,500 beds in Government hospitals for chronic diseases such as tuberculosis, mental disorders and leprosy, which require long periods of hospitalization, since the cost of treatment makes it impossible for the public to participate in financing the cost of providing medical care, especially since responsibility for the establishment and maintenance of hospitals for chronic diseases rests with the Government, in view of the close relationship between prevention and cure of such diseases.

c. The establishment of 1,100 training hospital beds in the public sector is envisaged. The number of medical students requiring hospital training (the fourth, fifth and sixth years of the seven-year medical course) will amount to 2,250. On the basis of three beds for each student the total number of training beds required by the end of the Fourth Plan will be 6,750. At present, there are about 4,650 hospital beds and another 1,050 are under completion. Thus about 1,050 additional beds will be required and this is the number which will be completed in the Fourth Plan. (See Chapter on Education.)

d. Some 4,000 new beds are to be built by the private sector through the loan scheme. To encourage the private sector to invest in medical care, in keeping with the policy of handing over responsibility for medical care to the public, and in order to bring about a more equitable distribution of health facilities, credits will be allocated under the Fourth Plan for the purpose of extending loans to private institutions and paying for part of the medical care services required by people with low incomes. If during the first two years of the Fourth Plan period, the progress of this programme is satisfactory and the respective funds have been absorbed, the number of beds to be constructed by means of the loan scheme will be increased to 8,000.

The method of granting loans to applicants will be based on regulations in which priority is given to securing the needs of retarded regions, in keeping with the required standards.

If in some areas the private sector does not apply for loans to build hospitals, use will be made of charitable organizations, and in such cases the funds will be made available in the form of outright grants.

e. In view of the plan to extend the activities of the Social Insurance Organization during the Fourth Plan, which will involve increasing social insurance coverage from the present 450,000 persons to 1,000,000 by the end of the Plan, at least 3,500 new hospital beds will be required by the Organization, if it is to maintain the present ratio of beds to insured persons, which is 3,000 beds for 450,000 persons. Some of this requirement for hospital beds will be met by means of agreements signed with private hospitals and the remainder will be met by the Organization itself.

f. It is envisaged that about 500 beds will also be established by the private sector from its own resources.

20 - The objective of the Fourth Plan for the development of the network of rural medical facilities is to increase medical coverage from 50 per cent of the rural population to 65 or 70 per cent. To achieve this goal, 500 new rural clinics will be established and the number of Health Corps units will be increased from 400 to 450. Owing to the scattered nature of the villages and the low density of population in rural areas, an ordinary clinic is able to serve a population of only up to 5,000, whereas the average coverage of each Health Corps unit is about 15,000 people and it is also qualitatively well-suited to meet local requirements. In order to obtain the maximum utilization of human resources and existing facilities, all rural clinics should therefore be operated on a semi-mobile basis. To improve the quality of out-patient services rendered, the average coverage of each semi-mobile dispensary must be set at 10,000. Table 3 provides an estimate of the per capita costs for rural health services under different systems:

As these figures demonstrate, the introduction of semi-mobile clinics will lead to an appreciable lowering of costs for building, equipment, training of manpower and maintenance.

21 - The objective of the Fourth Plan as regards the training of technical health personnel is to establish a balance between manpower training and development of medical and health activities. The training of physicians, dentists, pharmacists, and other medical specialists is dealt with in the Education sector of the Plan, while auxiliary and para-medical personnel are discussed here.

During the Fourth Plan, five nursing schools, ten schools for nursing assistants, three schools for sanitary

TABLE 3 —

Type of rural service	Average coverage (persons)	Average annual cost (Rials)	Average annual per capita cost (Rials)
Ordinary clinic	5,000	1,500,000	300
Health Corps unit	15,000	1,070,000	71
Semi-mobile clinic	10,000	1,800,000	180

assistants, one school for laboratory technicians and a number of training classes for midwives, etc. in rural districts, will be established. The capacity of the 20 existing schools for nursing assistants will be raised from an average of 60 to 80. The continuation of existing training programmes and the introduction of new ones will enable the following personnel to complete their training: 2,000 nurses, 5,700 nursing assistants, 50 sanitary engineers, 140 sanitarians, 900 sanitary assistants, 40 laboratory technicians, 100 hospital administrators, 100 nutritionists, and 1,600 laboratory assistants, anaesthetists, physiotherapists, radiologists, and similar specialists.

22 - Another major objective of the Fourth Plan is to develop health and medical research. This objective will be pursued by the creation of new health research institutes and the development of existing institutes. These bodies will be encouraged to undertake practical research in health and medical fields. Priority will be accorded to research oriented to solving existing problems and those likely to emerge as a result of the industrial and social trends. All medical and health research work carried out by different agencies will be co-ordinated by the Health Research Committee attached to the National Council for Scientific Research. The credits required for new research programmes will be paid to competent institutes through the National Council in accordance with these priorities. In addition, in order to make the best use of the facilities and resources of research institutes, arrangements will be made gradually to release these agencies from their educational activities, which will be transferred to universities or other competent bodies. Research institutes will then be able to concentrate fully on their basic functions as described above.

EXECUTIVE POLICIES

23 - Transter of responsibility for medical care to the public by means of:

a. Loans to private institutions. Loans will be made available to private institutions on the basis of specific criteria to be drawn up for each region. For the hospitalization of low-income patients referred by health councils, the cost of maintaining some of the hospital beds established will be paid to the institutions concerned in accordance with contracts drawn up for this purpose.

b. Extension of medical insurance to workers and civil servants. Medical insurance must be extended among these and other organized groups.

c. Strengthening and development of health councils. Part of the responsibilities for public health and medical care such as the maintenance of general and maternity hospitals, and mother and child health will be delegated to local authorities, but the maintenance of training hospitals, and establishments for the treatment of tuberculosis, leprosy and mental disorders and campaigns against major epidemics will remain the responsibility of the Government.

d. Encouragement of the private sector through the transfer of responsibility for providing medical care services needed by civil servants to groups of private physicians, which will serve to encourage a number of Iranian physicians residing abroad to return to Iran.

24 - Medical care services should become available to all classes of the population in a balanced manner through the following measures:

a. Establishment of a Medical Care Planning Council. All agencies responsible for medical care will be represented on the Council, which by being kept informed of the programmes of every agency will be able to direct medical care affairs in various regions and thus bring about a more equitable distribution of medical services.

b. Increased public sector investment in the development of medical care services. In rural and urban areas where income levels are not conducive to private investment, local health councils and charitable organizations will be used to develop medical care services. In such cases the Government will bear part or all of the expenses of construction and maintenance, depending on each case. In granting loans for the development of facilities to the private sector, priority will be given to less developed areas.

c. Out-patient care in rural areas will be developed on a semi-mobile basis, as indicated in paragraph 20.

25 - Major emphasis will be given to public health and preventive medicine programmes. The importance which preventive programmes exercise in reducing the incidence of infectious diseases and lowering the mortality rate justifies priority being such given to them, and the following measures must therefore be carried out:

a. Reorganization of the administration of the Ministry of Health so that:

i. it corresponds fully with the objectives of the Fourth Plan, which include extending effective control over all medical and health services, especially over environmental sanitation and drugs, and maintaining responsibility for preventive medicine and public health as mentioned above;

ii. responsibility at the level of provincial and district centres is clearly defined;

iii. all public health and preventive medicine activities at the regional level are co-ordinated and brought under a unified command.

In order to achieve the maximum co-ordination in health activities, planning committees at the provincial level are therefore essential, and in order to direct and provide effective leadership to local health councils and to draw up executive budgets, and so on, the establishment of provincial health councils is also recommended.

b. Application of modern techniques. It is essential that modern procedures and techniques for the prevention and control of infectious diseases are used fully. Full utilization must be made of the country's research institutions to solve problems encountered in the implementation of programmes. It is also essential to utilize the experiences of WHO in these respects.

c. Special attention will be given for continuing fight against cancer by way of scientific research and early diagnosis of the diseases.

26 - Proper attention must also be accorded to programmes for family health and family planning, industrial health, agricultural and school health.

a. For improved control of the size of families, especially large families in low-income groups and to provide such children with better facilities for nutrition, medical care, public health and education, family health services will be made available in all health institutions. The scope of activity of agencies taking part in the implementation of this programme will be on the basis of principles and within a framework to be established by the Ministry of Health. In Tehran the implementation of the programme will be supervised by the responsible under-secretary and in the provinces by the health councils.

b. Industrial health and safety. This activity will be developed in view of the trend towards industrialization. In this respect, the urban health centres of the Ministry of Health will be responsible for health and the Ministry of Labour and Social Affairs for industrial safety.

c. In order to prevent the establishment of superfluous Government agencies, make better use of manpower resources, co-ordinate the health activities of each region, and ensure a unified chain of command in such matters, the function of the National School Health Department as regards public health will be transferred to the health centres in each district. At the same time the medical care functions of the Department will be transferred to the district medical health offices.

d. The application of modern techniques in agriculture, such as the use of agricultural machinery, modern irrigation systems, pest control and chemical fertilizers, have created new health problems for the farming population. This trend is being intensified and such problems will become more acute in the future. It is therefore essential that extensive public health education is promoted as from now and the public are taught the proper use of modern implements.

27 - Environmental sanitation, especially the control of food, drugs and cosmetics, are of great importance and will be emphasized. Appropriate laws and regula-

tions will be drawn up for this purpose, and submitted to the authorities concerned for approval and implementation.

28 - Improvements in nutritional standards will also be emphasized in view of the vital role of nutrition in promoting the health and efficiency of individuals. During the Fourth Plan, measures will be taken to carry out nutritional education programmes based on quantities and qualities of food products. All possible efforts will also be made to minimize the nutritional deficiencies in vulnerable groups, such as children, nursing and expectant mothers, and workers, especially in deprived and backward areas of the country.

29 - Close attention will be paid to the training of technical personnel. In view of the value of manpower in the development of health and medical services the following measures are essential:

a. Improvements in educational standards in the medical sciences, especially public health, by developing training hospitals and the facilities available to teaching staff.

b. Revising medical education programmes at universities in accordance with the needs of the country. As part of the policy, priority should be given to training general practitioners and specialists in rural health.

c. More extensive utilization of medical faculties for training para-medical and auxiliary personnel.

30 - The development of medical research will be carried out by increasing the number of research institutions, expanding equipment and staff, defining the terms of reference of existing research institutes and co-ordinating research activity through the Health Research Council affiliated to the National Council for Scientific Research.

31 - In view of the significance of the malaria problem in Iran, especially because of the considerable financial and human resources already utilized on this project and certain to be utilized in the future, it is necessary to make a detailed analysis of the position regarding malaria in Iran and the relation between the various planning and executive agencies involved. It is therefore essential for the Ministry of Health to appoint a competent committee to make an accurate evaluation of the subject and propose various alternative policies compatible with the resources of the country.

32 - Assistance to Government and private charitable institutions to set up blood transfusion centres and laboratories.

DISTRIBUTION OF CREDITS

33 - The distribution of Fourth Plan credits for health by programmes is shown in Table 4.

34 - In addition to the above credits there will also be credits for health from other chapters of the Fourth Plan, the private sector and social insurance schemes, which will amount to about Rials 12.2 billion. As a result, total expenditure on medical and health affairs will amount to Rials 25.95 billion, as shown in Table 5.

Of the above Rials 25.95 billion, 20.75 billion will be provided by the public sector and the remaining 5.20 billion Rials by the private sector.

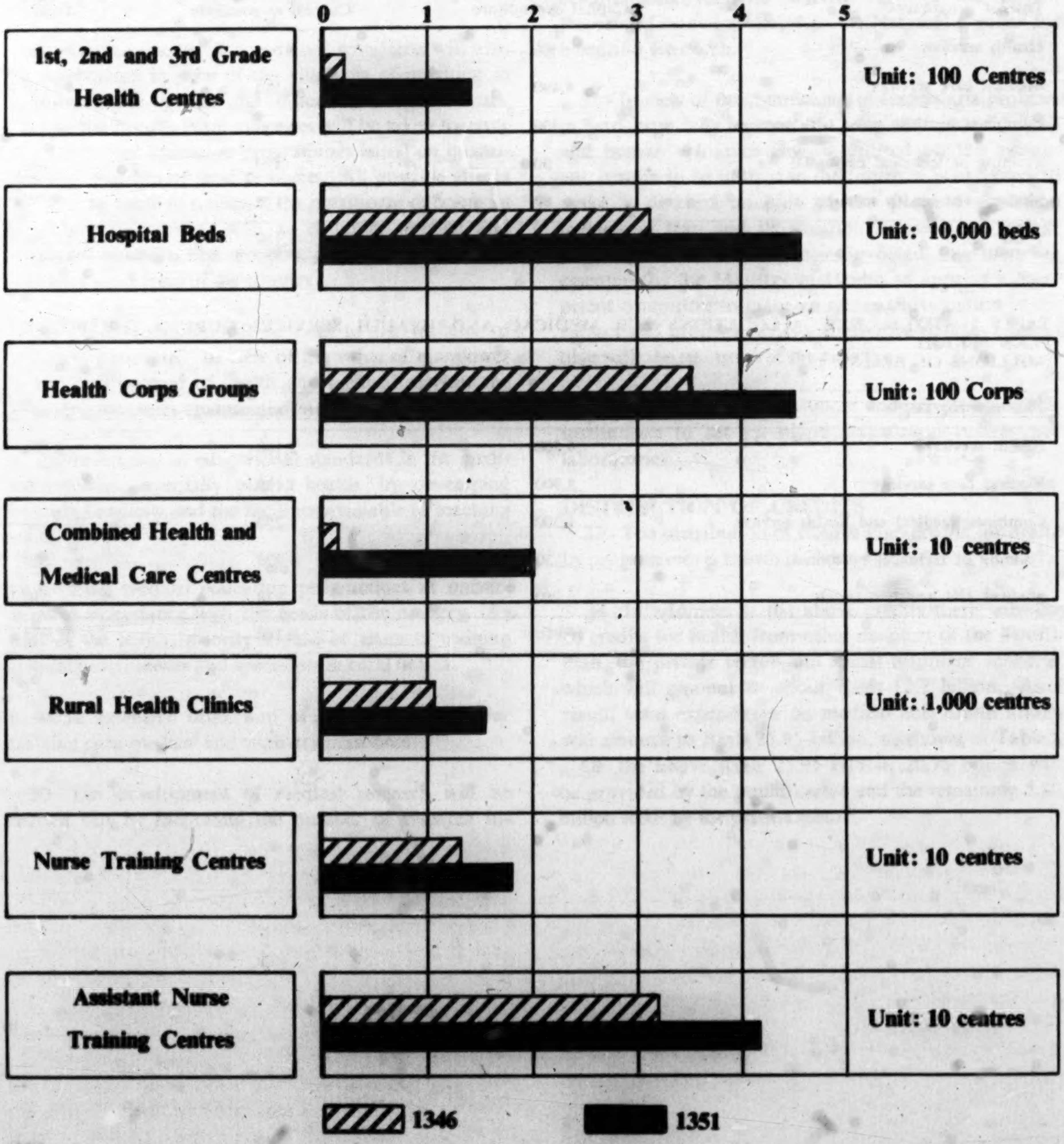
TABLE 4 — DISTRIBUTION OF CREDITS FOR HEALTH IN THE FOURTH PLAN BY PROGRAMMES (MILLIONS OF RIALS)

Title of programme	Capital expenditure	Current expenditure	Total
Health services	500	2,100	2,600
Medical care services	4,490	3,360	7,850
Combined medical and health services	1,300	1,250	2,550
Training of technical personnel	30	470	500
Medical and health research	80	170	250
Total	6,400	7,350	13,750

TABLE 5 — TOTAL NEW ALLOCATIONS FOR MEDICAL AND HEALTH SERVICES DURING THE FOURTH PLAN PERIOD (MILLIONS OF RIALS)

Title of programme	Capital expenditure	Current expenditure	Total
Health services	6,500	2,100	8,600
Medical care services	8,900	5,150	14,050
Combined medical and health services	1,300	1,250	2,550
Training of technical personnel	30	470	500
Medical and health research	80	170	250
Total	16,810	9,140	25.950

HEALTH AND MEDICAL CARE ACTIVITIES AT THE BEGINNING AND END OF THE FOURTH PLAN.



CHAPTER 21

SOCIAL WELFARE

INTRODUCTION

1 - General definition: Social welfare * covers a group of social services and institutions, the objective of which is to help individuals and families achieve the desired living standards so that in this way every individual, in his personal and social relationship with others and with society, will have an opportunity to advance and foster his talents and latent potential and thus improve his way of life within the limits of the available resources and in the interests of society.

The purpose of expending effort on social welfare in the broad scientific sense is to provide the public with at least the minimum human requirements.

Social services are in the first instance related to the protection and improvement of human resources and among their most important characteristics the following may be mentioned:

a. their non-profit making aspect;

b. their wide and general nature in the sense that they consider human requirements in a comprehensive and inter-related manner and from the standpoint of the general public. The right to benefit from social services, which was in the past restricted to specific social groups, such as the needy, orphans and the handicapped, is now available to everyone. It also covers, in addition to medical care, preventive programmes such as social insurance, family, child and youth welfare and rehabilitation programmes such as social development by self-help methods.

2 - The economic and social results of these programmes, in addition to the extension of social justice by reducing the gaps existing between various social groups, and improving the livelihood of relatively deprived classes, will include improving the quality of the work-force, encouraging people to save and participate effectively in development activities by means of self-help methods, strengthening the co-operative sense and understanding of social responsibility in individuals and finally establishing greater preparedness for the acceptance of social reform.

THE PAST AND PRESENT SITUATION

3 - Social welfare services were formerly performed by individuals and various institutions, and mostly had a religious aspect. A good example of this is the activities which were and still are being carried out in the form of endowments for public welfare. These activities were gradually taken over by "organized" agencies and placed at the service of the public in a more orderly manner. As a result of the economic and social development in the country the number of such agencies and institutions increased, so that at present some half a dozen Government agencies, 12 public social organizations and a number of private institutions are active in the field of social services throughout the country, and they enjoy considerable assistance from the Government. Besides the activities rendered by social institutions, such as the Imperial Organization for Social Services, the Red Lion and Sun Society of Iran, the National Association for the Protection of Children, the Farah Charitable Organization and the Foundation for the Protection of Mother and Child, and private organizations, measures are being taken in similar fields by various Government agencies, such as the Ministry of Interior, the Ministry of Agriculture, the Ministry of Health, the Ministry of Education and the Ministry of Labour and Social Affairs. However, in spite of vast investments made and the large number of social organizations, proper utilization is still not being made of these activities and investments, owing to the lack of a comprehensive programme and a co-ordinating body.

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* In the introduction to the detailed Plan of this Chapter there is a general explanation entitled "The Social Policies of the Fourth Plan", to which reference is made.

4 - In the Third Development Plan, no special status was given to social welfare activities, and therefore there are no specific targets within the framework of the Plan to be evaluated and appraised. Activities in this field carried out by Government, public and private social welfare organizations are therefore here summarized:

5 - Social insurance. At present, the following agencies are responsible for carrying out social insurance schemes:

a. the Social Insurance Organization, which covers salary and wage earners in the services, industry and mining sectors;

b. the Civil Servants Pension Fund, which is affiliated to the State Organization for Administrative and Employment Affairs;

c. the Civil Servants Insurance Organization, affiliated to the Ministry of Health, which is responsible for the medical care of civil servants;

d. the Bimeh Iran insurance company, which in cooperation with the Central Organization for Rural Cooperatives of the Ministry of Agriculture is responsible for insuring the rural population.

6 - The activities of these organizations during the Third Plan period have been as follows:

a. The Social Insurance Organization: The number of insured persons in 1336 was 190,000 and by 1341, the beginning of the Third Plan period, it had reached 300,000. According to the latest statistics (1345), the number of insured persons is about 450,000, and on the basis of the trends in 1344 and 1345 this figure is expected to reach about 520,000 by the start of the Fourth Plan. Available statistics put the total number of those eligible for social insurance in the services, industry and mining sectors at about 1,700,000, which means that about 26.5 per cent of all wage and salary earners in the country were covered by insurance by the end of 1345.

The Social Insurance Organization extends legal protection to its insured through 42 branches, 21 representative offices, 143 clinics (67 of which it operates itself, the remaining 76 being contracted) and 56 hospitals (13 of which it operates itself, the remaining 43 being contracted). At present the most important problem facing the Social Insurance Organization is the existing high level of benefits and low level of premiums. The heavy undertakings concerning sickness insurance (in 1345 the insured and their families, 1,800,000 in all, paid 7.5 million visits to the clinics of the Social Insurance Organization) as well as the volume of pension insurance (the insured receive on retirement the equivalent of their highest level of pay during their working life, their average rate of pay during the two years before retirement) will certainly be beyond the financial resources of the Organization in the years to come.

b. The Civil Servants Pension Fund: In 1345 the total number of civil servants was 343,000, to which should be added 20,000 employees of the State Police Administration, 2,200 university staff, and 700 judges of the Ministry of Justice. Of the above number, 170,000 are non-permanent civil servants (daily-rated, contracted, assisigned and so on) and the remaining 173,000 are official civil servants who receive Government protection through the Pension Fund.

Under the new Civil Service Employment Law nearly all the present non-permanent civil servants will be granted official status, and insurance will therefore have to be extended to all civil servants. At present, the financial condition of the Pension Fund is not satisfactory: in 1337, after payment of all expenses, its reserves were Rials 1,100 million and in 1338 and 1339, because of the enactment of the laws granting pay increases to engineers, teachers and, later, assistant engineers, it was left with a deficit, which was covered in 1339 by the payment of a Rials 50 million Government grant. Government assistance has since continued, reaching Rials 1,500 million in 1344 and Rials 2,100 million in 1345. An important problem at present is the lack of statistics required to estimate the obligations of the Fund in future years. The problem of paying civil servants' contributions to the Fund, which is made separately by each province and district to Tehran, leads to delays in the receipt of funds and hence to financial loss for the Fund.

c. The Civil Servants Insurance Organization: At present, this body carries out medical care activities in Tehran and 50 other districts. The benefits of the Organization are legally available to official civil servants throughout the country, who number about 173 thousand. Available statistics show that the total number of those who have referred to the Organization in Tehran and the provinces have been issued with a special card, was about 94,100 at the end of 1345. It should be mentioned that under the new Civil Service Employment Law, medical care insurance will be available to all civil servants. The Organization is faced with many problems, the most important of which are the lack of sufficient funds, the low level of coverage, the fact that only Ministry of Education personnel and not all insured pay insurance premiums, and the lack of co-ordination between the Organization and other Government agencies offering medical care services to their own personnel.

d. As regards insurance for the rural population in the Third Plan period, the Bimeh Iran insurance company in collaboration with the Central Organization for Rural Co-operatives prepared and implemented a scheme after the introduction of land reform. Under the scheme, villagers were insured for the sum of Rials 40,000 in the case of death and accidents, against a premium of Rials 400 per year. Statistics indicate, however, that for various reasons the scheme has not been well received by the rural population, and only 3,000 people have taken advantage of it.

7 - Family welfare. In respect of family welfare the following measures have been taken:

a. the establishment of 257 counselling centres and mother and child health centres throughout the country (Table 1);

b. the establishment of 50 day-nurseries in urban areas and a limited number in rural areas;

c. the implementation of a nutrition programme covering 250,000 school-children, and the development of school health;

d. the establishment of a Society for the Mental Development of the Child and 18 children's libraries in various towns by the end of the Third Plan, and selecting films suitable for children, in connection with which two children's film festivals have been organized in Tehran;

e. laying the basis for social work services in schools through the employment by the Ministry of Education of 12 social workers;

f. the establishment of a family welfare centre in Javadieh, which has a day-nursery and classes for adults, and carries out activities in the field of family health;

g. the establishment of centres to provide families with legal advice and guidance, which is provided by the Organization of Women and volunteer groups. A survey of existing conditions indicates that these centres and mother and child health centres have paid more attention to infants than to older children. Less attention has also been paid to family problems and their prevention.

8 - Welfare of parentless children. Measures taken with regard to the protection of orphans and parentless children have been the establishment of about 106 children's homes and nurseries in urban centres (Table 2), the encouragement of well-to-do families to adopt orphans and initial steps on the part of the Ministry of Justice to make use of foster families. Major problems in this field have been as follows:

a. the absence of a law concerning the protection and maintenance of parentless children;

b. insufficient attention to the advantages of utilizing foster families;

c. lack of attention to the emotional development of children.

9 - Youth welfare. At present numerous youth organizations at the national, provincial and local level are active in such fields as sports, recreation, camping and scouting, and cultural and artistic activities. The most important of these organizations are the Organiza-

TABLE 1 — NUMBER OF COUNSELLING CENTRES AND MOTHER AND CHILD HEALTH CENTRES AT THE END OF THE THIRD PLAN

			No. of Counselling Centres		No. of Mother and Child Health Centres
Province or Governorate-General	Population	Total	Red Lion and Sun Society	Imperial Organization for Social Services	Ministry of Health
Central	4,950,394	39	6	15	18
Gilan	1,754,650	15	6	5	4
Mazandaran	1,843,388	13	6	3	4
East Azarbaijan	2,598,022	17	8	6	3
West Azarbaijan	1,087,702	9	5	1	3
Kermanshah	779,336	7	0	5	2
Khuzestan	1,614,576	20	4	7	9
Fars	1,449,472	15	1	7	7
Kerman	763,689	6	4	1	1
Khorasan	2,494,283	18	5	10	3
Esfahan	1,704,726	16	3	8	5
Sistan and Baluchestan	456,435	10	1	5	4
Kordestan	624,256	7	1	3	3
Lorestan	688,139	5	2	3	0
Hamadan	888,663	3	1	1	1
Oman Sea Ports	346,784	2	1	1	0
Persian Gulf Ports	252,005	2	2	0	0
Semnan	207,897	3	3	0	0
Total		207	59	81	67
Private Institutions		50			
Grand Total		257			

tion for Physical Education and Healthy Pursuits, the National Scouting Organization of Iran, the Red Lion and Sun Youth Organization, the Ministry of Education's Department-General of Training and the Youth Palace. It should be added that several Government, Government-affiliated and private agencies whose main functions have nothing to do with youth problems have taken measures in recent years in the field of youth welfare. Among these are the extensive measures taken by the National Iranian Oil Company and private investment in the field of sports.

TABLE 2 — NUMBER OF CHILDREN'S HOMES AND NURSERIES AT THE END OF THE THIRD PLAN

Province or Governorate-General	Population	Total	Red Lion and Sun Society		Farah Pahlavi Charitable Society		Tehran Education Authority	
			Children's homes	Nurseries	Children's homes	Nurseries	Children's homes	Nurseries
Central	4,950,394	14	2	1	2	1	4	4
Gilan	1,754,650	3	1	0	2	0	0	0
Mazandaran	1,843,388	5	0	0	5	0	0	0
East Azarbaijan	2,598,022	13	0	1	12	0	0	0
West Azarbaijan	1,087,702	2	0	0	2	0	0	0
Kermanshah	779,336	2	0	0	2	0	0	0
Khuzestan	1,614,576	7	3	0	4	0	0	0
Fars	1,449,472	2	0	1	1	0	0	0
Kerman	763,689	5	3	0	2	0	0	0
Khorasan	2,494,283	9	4	0	5	0	0	0
Esfahan	1,704,726	5	2	0	2	1	0	0
Sistan and Baluchestan	456,435	5	4	0	1	0	0	0
Hamadan	888,663	2	1	0	1	0	0	0
Oman Sea Ports	346,784	1	0	0	1	0	0	0
Persian Gulf Ports	252,005	1	0	0	1	0	0	0
Total		76	20	3	43*	2	4	4
Private institutions and municipalities outside Tehran		30						
Grand Total		106						

* **Note - The Farah Pahlavi Charitable Organization has 17 children's homes under construction in various provinces. There are also a further 50 children's homes in various parts of the country that are affiliated to private institutions and social organizations.**

In respect of matters concerning youth, the Third Plan only covered sports and scouting activities (under the Education Chapter). About 100 sports projects were implemented from Plan credits, including the completion and construction of swimming pools, sports stadiums, a sports and cultural centre, women's sports centres and other facilities (Table 3). The completion of the Youth Palace was also carried out during the Third Plan period from development funds.

The Red Lion and Sun Society, while expanding the activities of its Youth Organization, has established several multi-purpose youth homes in a number of provincial and district centres. Camping activities for young people and students were expanded during the Third Plan period to the extent that in 1345 a total of 2,400 young people and students took holidays in Ministry of Education camps, five times as many as did so in 1335. The number of children of National Iranian Oil Company workers taking part in the Company's summer camps in 1344 was thirty times greater than in 1337. A number of other isolated and unorganized activities have also been carried out in the field of youth welfare, most of which have not been in conformity with the main requirements of the various categories of young people.

TABLE 3 — FACILITIES FOR YOUTH ACTIVITY AT THE END OF THE THIRD PLAN

Type of facility / Organization	Youth camps	Youth centres	Sports facilities			
			Stadiums	Gymnasiums	Swimming pools	Sports clubs
1. Organization for Physical Education and Healthy Pursuits	0	0	50	50	29	350
2. Ministry of Education	2	105 school clubs	0	0	0	0
3. National Scouting Organization	6	17 scouting centres	1	0	4	0
4. Ministry of Science and Higher Education	0	0	0	1	2	2
5. Central Youth Palace	1	1	0	0	1	0
6. Organization for Youth Guidance	1	5	0	0	0	0
7. Red Lion and Sun Society	0	3	0	0	0	0
8. National Iranian Oil Company	1	0	0	0	21	0
9. Private institutions	0	12	0	0	20	0
10. Ministry of Labour and Social Affairs	1	0	1	0	0	75
11. Imperial Armed Forces	2	0	2	4	4	4

10 - Workers' welfare. Parallel with the economic development of the country, it is necessary to expand welfare services to groups that carry the heavy burden of such economic development. Workers play an important role in this respect. The problems of working groups are: their inability or limited ability to read and write; the lack of trade specializations; malnutrition; inadequate environmental sanitation, labour and public health; relatively low levels of pay; the prevalence of intermittent unemployment; limitations in the expansion of trade unions; and the lack of suitable housing facilities. In recent years, however specific measures have been taken for workers' welfare, as follows:

In addition to social insurance, which has already been mentioned, some housing projects have been carried out for the workers. The National Iranian Oil Company has provided new housing quarters for all workers in Fields areas. The Government has also established housing estates for workers in certain areas, or has provided assistance through Bank Refah Karegaran (the Workers' Welfare Bank), for the construction of low-cost housing and extending loans for the construction or purchase of houses. As a result of the implementation of the law entitling workers to a share in factory profits, 1,200 group contracts had been signed with workers by mid-1346.

The establishment of about 400 co-operative societies with a total membership of over 76,000 workers and the expansion of the Organization of Physical Education and Healthy Pursuits, which has been quite successful in extending sports and recreative activities among workers, establishing a workers' sports stadium and 75 workers' sports clubs, are among the most necessary and useful measures taken for the welfare of workers.

11 - Rural welfare. In this connection large-scale but unco-ordinated actions have been taken by various agencies. Thousands of Literacy, Health, and Extension and Development Corpsmen have participated in these activities. (An average of 8,000 Literacy Corpsmen, 1,500 Health Corpsmen, and 1,400 Extension and Development Corpsmen are at present working at the village level.) These Corpsmen, in addition to their main functions, are active in the field of community development and extension of self-help services. Moreover, training has also been given to about 1,000 community workers, whose main function is to induce a spirit of dynamism into rural communities and ensure the participation of the rural population in development programmes. Training has also been provided for 450 home-making extension workers, whose main function is to give preliminary training in home-making, child-raising, cottage industries, first aid, animal husbandry and poultry breeding to rural women. In addition to these workers, a considerable number of other individuals, such as health engineers, rural teachers, co-operative officials and agricultural extension workers are also active at the village level.

According to surveys, more than Rials four billion is allocated by the Government each year to these development activities at the village level, and about 60,000 civil servants are employed at this level. These resources, however, are not fully utilized because of the lack of co-ordination between various activities.

12 - Rehabilitation of specific groups: Measures so far taken by the public sector and the private sector are as follows:

Establishment of one rehabilitation school and two workshops for manufacturing artificial limbs, a rehabilitation centre for disabled children, a vocational rehabilitation centre at the Bu Ali T.B. hospital, vocational workshops at leprosy centres, seven schools for the blind, six schools for the deaf and dumb, five schools for mentally retarded children, the expansion of vocational workshops at prisons in Tehran and some expansion at prisons outside Tehran, the establishment of 16 work-camps with vocational workshops, the establishment of a reform school in Tehran for juvenile delinquents with vocational and educational classes and workshops, anti-drug-addiction measures in conjunction with a special hospital for this purpose, and the treatment of mental patients through work and recreation (Table 4).

The most important bottleneck in this respect has been the failure to expand specialized services and personnel to the extent required. Moreover, in certain

TABLE 4 — LIST OF EXISTING FACILITIES FOR THE WELFARE OF SPECIFIC GROUPS (THE PHYSICALLY, MENTALLY AND SOCIALLY HANDICAPPED) AT THE END OF 1345

Programme title / Organization	Physically handicapped	Mentally handicapped	Socially handicapped			
			Convicts	Juvenile delinquents	Addicts	Beggars
Red Lion and Sun Society	One rehabilitation centre for paralysed children and one workshop for the manufacture of artificial limbs.					
National Society for the Protection of Children		Three centres for retarded children in Tehran.				
Private institutions	Four schools for the blind; three schools for the deaf and dumb, two geriatric homes.					
Imperial Iranian Armed Forces	One workshop for the manufacture of artificial limbs.					
Organization of Labour Camps						Sixteen labour camps
Ministry of Education	Three schools for the blind deaf and dumb.					
Department-General of Prisons			125 prisons and detention centres	One reform centre		
Ministry of Health	One sanatorium for the physically handicapped; two leprosy sanatoriums; eight tuberculosis sanatoriums.	Ten mental hospitals			One hospital and one clinic for addicts.	
Social Insurance Organization	One tuberculosis sanatorium.					

activities, insufficient attention has been paid to the importance of rehabilitation programmes in achieving complete cures.

13 - Training. Among the most effective measures of the Third Plan has been the development of a nucleus of social worker training, which began at the end of the Second Plan period with limited assistance from some Government agencies and the United Nations, into a well-equipped training centre capable of training social workers (270 social workers have so far been trained at this centre). In 1346 the technical and vocational

school of the Ministry of Health introduced a new course for the training of assistant social workers for hospital duties and 21 students are enrolled on it. The Farah Charitable Society has also established a school for the training of children's instructors with an enrolment of about 60 students.

For service in villages, the Ministry of Agriculture has trained approximately 450 home-making extension workers and the Ministry of Interior has trained about 1,000 community workers.

14 - Research: The Institute of Social Studies and Research of the University of Tehran and other research institutions have conducted various research studies concerning social problems, some in the field of social pathology and urban, rural and tribal problems.

15 - Problems and major difficulties: Numerous problems and bottlenecks exist in the field of social welfare services, the most important of which has been shortage of specialized manpower for the proper utilization of existing potential and resources. For example, 95 per cent of the country's children's homes are run by non-specialists. At youth centres and hostels specialized individuals are extremely few, and the existing technical staff is not being utilized efficiently. Another problem is the lack of co-ordination among activities of Government, social and private executive agencies, a state of affairs that has been caused by the lack of a comprehensive plan. Nor are existing rules and regulations at all consistent with the needs of the age and in some cases the lack of appropriate laws makes matters more complicated.

Even more important is the inequitable distribution of welfare services in the country. For example, about a quarter of all counselling centres in Iran are located in Tehran. No measures have been taken and no facilities and resources are available for handicapped children and for rehabilitation activities outside Tehran.

In addition, the trend of investments and charitable activities has been directed towards temporary solutions for social problems, and little attention has been paid to the prevention of problems and programmes of rehabilitation and creativity. Modern and progressive methods have not been applied to some activities such as the adoption of parentless children.

The offer of free services without regard to family income has weakened the sense of responsibility and self-confidence of the recipients of such services and has made them accustomed to dependence.

Another major problem has been the shortage of basic information and statistics in these fields, especially in the case of services rendered by private institutions.

General objectives of the Fourth Social Welfare Plan

16 - The general objective of the social welfare plan is the gradual transformation of the services at present rendered in a limited way in the form of charity and to effect temporary remedies for social problems into well-organized services rendered under Government supervision as a public responsibility on the basis of scientific criteria. At the same time these services should be co-ordinated with those provided by public, social and private agencies so that basic services and social rights will be available to all, so that social justice will be promoted among the various groups of society and the latent forces of various groups will be mobilized for the public and national good.

Specific programmes and executive policies

17 - Specific social welfare programmes cover the following fields: social security, child and family welfare, youth welfare, workers' welfare, rural welfare, welfare and rehabilitation of specific groups, training and research concerning social welfare.*

Obviously, the Fourth Plan cannot meet all the national requirements in respect of welfare services. In view of the existing financial and human resources and priorities, the following programmes are envisaged:

18 - Social insurance, which forms the most important component of social security when fully applied to all employed sections of society, can in practice provide

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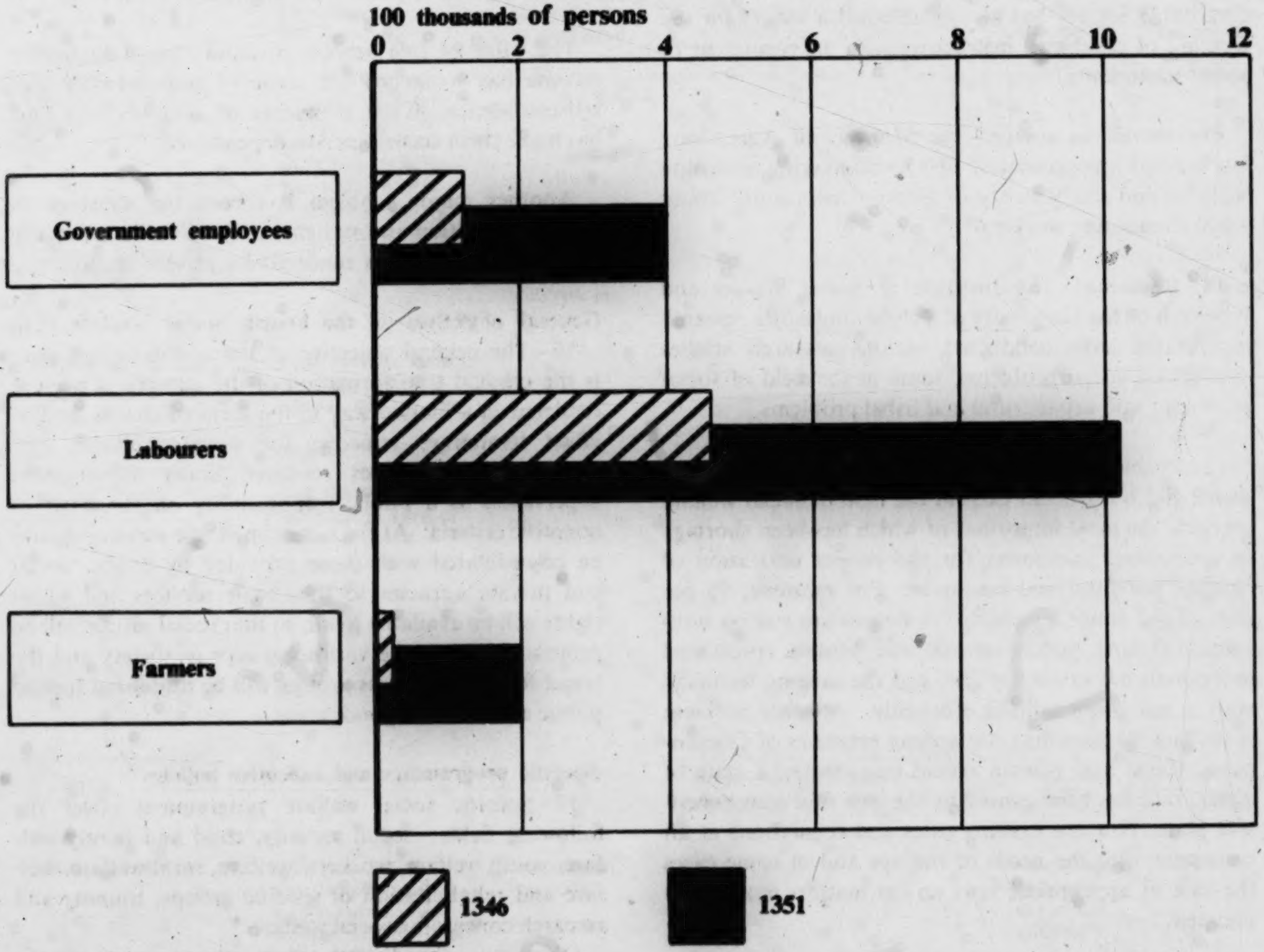
* International co-operation in matters of social welfare has been covered in the detailed plan of this chapter.

EXTENT OF SOCIAL INSURANCE COVERAGE AT THE BEGINNING AND END OF THE FOURTH PLAN



the general public with most social services that help to promote welfare. The Government can also implement its specific policies more effectively through social insurance than in other ways. The scope and coverage of social insurance during the Fourth Plan period will be as follows:

a. The Social Insurance Organization. During the Fourth Plan period the number of salary and wage earners in the services, industry and mining sectors will reach 2.2 million. The target of the Social Insurance Organization, in view of this increase, will be to extend insurance coverage to 45 or 50 per cent of all eligible salary and wage earners in the services, industry and mining sectors.

The following measures will be taken to expand activities of the Social Insurance Organization during the Fourth Plan period:

1. studying the feasibility of revising insurance premium

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rates (in accordance with the law) in order to effect a balance between insurance premiums and the present legal protection;

ii. payment by the insured of a small share of the costs of medical care in order to avoid non-essential visits;

iii. determination of the maximum amount of retirement pay and avoidance of unnecessary financial assistance;

iv. payment of all Government debts to the Social Insurance Organization;

v. revision of methods of investing reserves and better utilization thereof;

vi. replacing voluntary insurance by compulsory insurance for death and retirement benefits;

vii. strengthening the technical personnel of the Social Insurance Organization.

b. The Civil Servants Pension Fund. The following steps are envisaged in respect of the Civil Servants Pension Fund:

i. In view of the provisions of the Civil Service Employment Law and the expenditure of the Fund, the Government shall duly pay its contribution to the Fund during the Fourth Plan period. Since the Government has undertaken under this law to contribute to the Fund on the basis of one fortieth of their salary for every year during which they were non-permanent civil servants to make up for unpaid contributions. To accomplish its obligation (which will result in a long-term deficit in the Fund) the Government's contribution will increase from 8.5 per cent to at least 10 per cent of its employees' salaries.

ii. As the hitherto non-permanent civil servants have not paid their retirement premiums from the beginning of their service the question will be studied and a suitable rate selected for their premium payments.

iii. In order to facilitate and speed up the work of the Fund the Government's contribution to its employees' premiums in Tehran and the provinces will be paid to the Pension Fund as a lump sum.

iv. Better utilization of the reserves of the Pension Fund, which will increase in size as a result of the changed status of non-permanent civil servants, is essential.

v. During the Fourth Plan period, the implementation of the Civil Service Employment Law will lead to an expansion in civil servants' insurance and, as a result, retirement insurance will expand to all official civil servants, who are expected to number about 400,000 by the end of the Fourth Plan period, and parallel with the expansion of medical care services through contracts with medical groups, medical care insurance will gradually be expanded.

vi. During the period of the Plan, insurance premiums and compulsory contributions will be established and the level of medical care protection for all civil servants will be standardized.

c. Insurance of the rural population. As a result of the changes in the social structure of rural areas brought about by land reform, and in order to expand social justice at the village level, parallel with such expansion in the towns, the following insurance measures are envisaged for the rural population during the Fourth Plan period:

i. Crop insurance for at least 100,000 rural families. This programme will be carried out on a pilot basis in several regions. The purpose of this insurance is to cover damages resulting from pest attacks and general accidents.

ii. Extension of life and disability insurance to 1.5 million heads of families. The Ministry of Agriculture is responsible for this programme and in implementing it will make full use of local organizations such as village councils and rural co-operatives.

19 - Child and Family Welfare. The objectives and programmes of the Fourth Plan in this field are as follows:

It is recognized that the family is the basic unit of the social system and its transformation is the basis of social change. Special attention has therefore been paid to the family in the Fourth Plan so as to ensure the protection and stability of family structure and thus prevent family break-ups and the maladjustments and social problems that arise from them. The inter-relationship of family problems requires that during the Fourth Plan period family welfare programmes are carried out at multi-purpose centres dealing with social, economic, educational and cultural affairs that affect a family and regarding all the members of a family as an integrated unit.

To this end, the existing 250 counselling centres and mother and child health centres will be converted into family welfare centres and the distribution of these centres will be such that there will be at least one such centre in each district. These centres, in addition to providing health services, including mother and child health and family planning, will have other activities such as social education, advisory services, literacy programmes, useful and gainful activities for periods of unemployment, group activities for community development, assistance for needy families, and useful occupations for children and young people not attending school and children of working mothers. The training of women, especially in rural areas, will be given special consideration and for this purpose use will be made of people trained by the Women's Organization. The rapid development of industry, and the increasing participation of women in social and economic activities outside the home, have created the need for closer attention to the status and care of children. In keeping with this concept, the establishment of day-nurseries for working mothers will be encouraged during the Fourth Plan period, and 250 day-nurseries will be established nearby the family welfare centres. The school meals programme will continue during the Fourth Plan period. Social work will be expanded in schools and efforts will be made to ensure children's health by means of health centres.

To carry out the above programme satisfactorily some 250 social welfare administrators for the family welfare centres, 250 social workers, 500 assistant social workers and 750 instructors for the day-nurseries will be trained with the co-operation of educational bodies. Family welfare centres will be administered by the same bodies that are now responsible for counselling centres and the mother and child health centres. The Government agency responsible for this programme is the Ministry of Health, and the training of the required personnel will be the responsibility of the universities at the higher levels and of the executive agencies themselves at the lower levels.

20 - Welfare of parentless children. Since the main objective of child welfare programmes is to keep children in a natural family environment, efforts will be made in the first instance to make use of close relatives to look after parentless children, and failing that, to use foster homes. Only if these two methods are not available will boarding institutions, such as nurseries and children's homes, be used for the protection and upbringing of children. In the homely environment of such institutions parentless children will be brought up like members of one family. During the Fourth Plan period ten experimental family-type centres will be established in provincial centres and 150 social workers will be trained to look after parentless children by placing them with foster families or in children's homes and in supervising them, while 300 kindergarten instructors will be trained for service in children's homes.

The administration of children's homes will remain the responsibility of the present bodies, but local authorities will be responsible for accepting, placing, supervising and determining the status of such children at these homes.

21 - Youth welfare. In order to develop the mental and physical powers of young people, and to prepare them to accept the responsibilities of adulthood, special services should be made available to them. During the Fourth Plan period, 50 multi-purpose youth centres will be established in cities with a population of more than 40,000 in order to guide and develop young people and offer them instruction in social, vocational and artistic pursuits. The young people will themselves participate in the administration of these centres.

In addition to providing facilities for sports and recreations these centres will provide social and vocational training and will carry out cultural, artistic and scientific programmes, which will be prepared in the light of economic and local conditions. In establishing these centres, priority will be given to the poorer sections of each town, where the number of young illiterates or school drop-outs is greatest, so as to guide them in finding suitable employment and to prevent delinquency.

Attention will be given to one of the most important problems of youth employment, by establishing "employment guidance" services at training centres and by strengthening bodies responsible for the collection of information concerning employment matters and changing trends in the labour market. Measures to expand and complete youth centres of the Red Lion and Sun Society, and to coordinate the centres' activities with that of the youth welfare of the country in line with the aims of the Society. Extensive research will also be conducted in co-operation with international organizations and specialists on the needs and problems of youth, and by organizing youth seminars (with the participation of representatives of youth groups) practical solutions will be sought in this respect. Three pilot work-camps will be established for university students and the establishment of vacation camps for students, school-children, rural and tribal youth will be encouraged. Action will also be taken to expand scouting activities. During the Fourth Plan period, extra-curricular activities for school-children and students, including scientific and arts programmes, will be expanded.

22 - In connection with sports and physical education for young people, the following measures will be taken:

a. The Sports Institute, affiliated to the Organization for Physical Education, will start training sports instructors for all sports, while for the training of physical education instructors at higher levels, allocations under the Education Chapter will be utilized.

b. The following sports facilities will be created during the Fourth Plan:

i. the construction of swimming pools in towns with a population more than 20,000 located in the hot southern areas of the country and on the fringe of the Dasht-e Kavir desert;

ii. the construction of open air sports grounds in provincial towns and in areas of Tehran where sports facilities are not adequate;

iii. the completion of sports facilities in provincial towns;

iv. the construction of a large stadium in Tehran.

More attention will also be paid to the requirements of young people in rural areas during the Fourth Plan. The policy of the Fourth Plan will be to encourage the private sector to invest in sports by granting long-term, low-interest loans according to special regulations.

23 - Workers' welfare. The industrialization of the country and the rapid increase in the number of workers as well as the decisive effect they are having on the country's economic growth, together with their increasing requirements and social and economic problems, call for greater attention to workers' welfare.

Activities related to workers' welfare during the Fourth Plan will be as follows:

a. the extension of literacy campaign classes in major centres of labour concentration; (See Chapter 17.)

b. the establishment of 120 short first-aid courses, with the co-operation of the Ministry of Health, the Red Lion and Sun Society and the Social Insurance Organization;

c. the organization of short on-the-job classes for raising the skill levels of employed workers; (See Chapter 17.)

d. the creation of two pilot social education centres with a capacity of 60 persons for the training of literate workers with a view to preparing them for social and trade union responsibilities;

e. the establishment of five cultural and sports centres for workers in five industrial regions of the country, as provided for under the youth welfare programme;

f. the establishment of four workers' rest-homes in areas with pleasant climates so that workers and their families may use them for holidays, and the completion of summer-camps for workers;

g. assistance to the private sector in building 10,000 workers' houses; (See Chapter 16.)

h. the expansion of co-operatives, and the utilization of modern co-operative methods; (During the Fourth Plan it is planned to run existing co-operative units as models using modern multi-purpose methods and to extend the system if it proves successful);

i. the establishment of six workers' social services centres as a pilot scheme in major industrial centres of the country (Esfahan, Tabriz, Ahwaz, Arak, Tehran and Yazd);

j. increasing the number of group contracts and extending safety and labour inspection services by engaging 100 labour inspectors, labour physicians and industrial safety engineers;

k. encouraging employers to establish day-nurseries in factories where the number of female workers has reached the level foreseen in the relevant regulations;

l. the provision through Bank Refah Karegaran (Workers' Welfare Bank) and Bank Rahni Iran (Mortgage Bank of Iran) of facilities to extend housing loans to workers.

24 - Rural welfare. Over-population at the rural level and the importance of this vast source of manpower to the national product as well as the relatively low level of income of rural inhabitants make it necessary to pay more attention to the welfare of this section of the population.

The lack of co-ordination among the various executive agencies at the rural level, the sporadic and unsystematic nature of the services offered, coupled with the low level of technical knowledge of the officials concerned, have contributed to the complexity of the problems involved, especially since the ability of the rural population to participate in development activities has in the past been limited.

The objective of this part of the Plan is the extension of welfare services to rural society and the utilization of self-help methods to harness the latent power and inherent aptitudes of the villagers so as to increase productivity, with the ultimate result of improving living standards and ensuring the welfare of the rural population. With this objective in mind, the training of officials directly concerned with self-help and welfare extension services, such as village social workers (dehyars) and home-making extension workers, will be specially stressed. The following measures will be taken in order to achieve this objective:

Training of 300 university graduates as development officers for a period of one year to take up positions of district development directors. District development directors, apart from being members of district co-ordination councils, are responsible for on-the-job training of dehyars and supervision of their work.

The duties of the dehyars are to familiarize the rural population with the heavy responsibilities assigned to them in connection with improvement of social and economic conditions of their country, by reinforcing their sense of individual and group responsibility, encouraging villagers to organize themselves in local rural societies with a view to recognizing the essential requirements of the society in which they live and solving the problems they are faced with through self-help and collective efforts with the assistance of the officials concerned such as Literacy, Health, and Extension and Development Corpsmen. Educating the villagers to accept social transformation is one of the main functions of the dehyars, and improvements in the standards of programmes for training them and home-making extension workers are especially emphasized in this Plan. In addition, 700 female dehyars will be trained with the assistance of the Women's Organization, who in addition to home-making extension work and dealing with the problems of rural women that cannot be taken care of by male dehyars, are also responsible for literacy instruction of rural women and girls, where women instructors are not available in the village. Dehyars will also co-operate with other officials in handling general rural problems, including encouraging young people and children in useful pursuits.

Among other measures to be taken for the welfare of the rural population is the establishment of 300 social gathering and services centres in large villages which can also serve neighbouring villages. These centres will serve both to extend Government services, such as health, medical treatment, welfare, education and extension, to the villages, and as bases for local organizations and services, such as Houses of Equity, co-operatives and village councils, and will also act as centres for cultural, artistic and similar activities. The administration of these centres will be the responsibility of district development directors.

25 - Welfare and rehabilitation of specific groups. This category consists of the physically handicapped, including cripples, paralytics, the blind, deaf and dumb, the old and disabled, those stricken by chronic and serious diseases, such as tuberculosis and leprosy, the mentally handicapped, including retarded children, mental patients and idiots, the socially handicapped, including prisoners, juvenile delinquents, drug addicts, beggars, vagrants, etc.

a. The physically handicapped. A rehabilitation centre with a capacity of 50 children and 30 adults, four orthopaedic workshops in provincial towns, three retention and occupational rehabilitation centres for the aged and disabled with a total capacity of 150 persons, three retention and education centres for handicapped children, 10 educational and manufacturing workshops for blind, deaf and dumb adults, 15 schools for blind and deaf and dumb children, will be built. Rehabilitation services will be provided in sanatoriums for tuberculosis patients, and two vocational and educational workshops in leprosy sanatoriums in Tabriz and Mashhad will be equipped.

b. The mentally handicapped. The following will be established for the benefit of this group: a rehabilitation centre with a capacity of 200 boarding children, 300 day children, 30 classes in primary schools with a total capacity of 300 for retarded children, three retention and education centres for the mentally handicapped children. Rehabilitation services will be provided in mental sanatoriums. Vocational rehabilitation of the physically and mentally handicapped will be the responsibility of the Ministry of Labour and Social Affairs, while the Ministry of Health will be responsible for medical rehabilitation. The education of retarded, deaf, dumb and blind children will be the responsibility of the Ministry of Education, while the upbringing of physically and mentally handicapped will be undertaken with the co-operation of social and private organizations.

c. The socially handicapped. The following activities and services will be undertaken for this group:

i. Addicts: Prevention of addiction through mass education, a campaign against smuggling by means of a revision of existing regulations and organizations, follow-up treatment of addicts through the establishment of rehabilitation centres; use of existing facilities of the addicts hospital in Tehran and similar hospitals and camps in provincial centres. A rehabilitation centre with a capacity of 200 inmates will be established in Tehran and five centres, each with a capacity of 100 inmates, will be established in provincial towns.

The Ministry of Health will be responsible for treatment and the Ministry of Labour and Social Affairs will be responsible for the social rehabilitation of addicts.

ii. Single mothers and their children: A vocational and educational retention centre able to house 100 such mothers will be established and administered by the Women's Organization.

iii. Beggars: With the implementation of the law prohibiting begging, efforts will be made to round up all beggars from the streets and place them in labour camps. Those able to work will be given vocational jobs, while those unable to work because of old age or physical disabilities will be retained in camp sanatoriums. Young beggars will be placed in vocational boarding schools. With the expansion and completion of 16 vocational workshops in labour camps, efforts will be made to find work for all able-bodied beggars.

Special funds for helping paupers and beggars will be established in every town so that instead of helping them directly, charitably-inclined people may help beggars through this fund. Two special labour camps will also be established for prostitutes, with a total capacity of 200 women.

iv. Juvenile delinquents: Five training and reform centres with a total capacity of 500 persons will be established for juvenile delinquents, to which delinquents currently detained in prisons will be transferred. At the same time, by means of a revision of the law governing delinquents and juvenile courts and through the adoption of a probation system, efforts will be made for the treatment and rehabilitation of juvenile delinquents. To carry out this programme, 30 probation officers will be trained for service in the reform centres and 30 specialized social workers for service in juvenile courts.

v. Prisoners: The following measures are envisaged for prisoners: the completion of eight prisons and detention centres, the construction of which began in the Third Plan; the training of prison staff at various levels; the expansion of social work in prisons; the adoption of necessary measures to look after the breast-feeding children of imprisoned mothers; the expansion of vocational workshops in prisons and the campaign against illiteracy among prisoners with the help of the Society for the Protection of Prisoners; the establishment of a manufacturing workshop for unemployed ex-prisoners with the co-operation of the Society for the Protection of Prisoners; investigating conditions prevailing in prisons, finding out motives behind the crimes, preparing reform programmes for prisoners, and taking measures to prepare them for better social life under the protection of law.

26 - Training and research. The greatest obstacle to the extension of welfare services is the lack of specialized trained staff. In order to overcome this problem and execute new programmes, the expansion of training of the required technical staff will be specially emphasized in the Fouth Plan. To attain this objective, the following activities are envisaged for training and research in the field of social welfare during the Fourth Plan period:

One-year training of 850 social workers at the graduate and post-graduate level, in addition to 350 social workers at the post-secondary and graduate level to be trained at the Advanced School of Social Services, the training of 1,400 assistant social workers, youth leaders and dehyars at the post-secondary level, 300 children's instructors, 750 nursery instructors, 250 religious instructors at the high school level, on-the-job training of all directors of welfare boarding establishments, such as children's homes and nurseries, sports instructors, dehyars, and home-making extension workers, assistance to existing training programmes, and the implementation of a number of research projects in connection with important social problems in co-operation with research agencies.

27 - General policies and guidelines. The general policy is based on the principle that the main responsibility for the provision of welfare should be borne by the Government. The responsibilities and functions of the Government at the national level will be as follows:

Planning; formulation of general policies and assignment of priorities; allocation and distribution of credits in various regions on the basis of the requirements and the relative level of development; co-ordination; establishment of standards; supervision; framing of regulations; education and research at the regional level; estimation of regional requirements and assistance in planning; co-ordination at the regional level; supervision and implementation where social and private organizations are not able to meet urgent local demands.

28 - In order to achieve co-ordination and establish proper planning discipline and to prevent duplication of efforts and overlapping of duties as well as to avoid wasting human and financial resources, a High Council for Social Welfare will be established with the membership of the planning body and all executive Govern-

ment, social and private bodies concerned with welfare services, which will be presided over by Her Imperial Majesty the Empress of Iran. The Council will have a general assembly composed of the representatives of all the above bodies, a central committee composed of the representatives of major welfare agencies and the planning body, a technical secretariat and the following technical committees:

- — Social Insurance Committee;
- — Family and Child Welfare Committee;
- — Youth Welfare Committee;
- — Workers' Welfare Committee;
- — Rural Welfare Committee;
- — Committee for the Rehabilitation and Welfare of Specific Groups;
- — Legal Committee;
- — Education and Research Committee;
- — International Co-operation Committee;

The High Council for Social Welfare, in co-operation with Plan Organization, will be responsible for all welfare services, the establishment of terms of reference for social organizations, the perusal and submission of its views concerning bills and regulations relating to social welfare, and for raising the standards of welfare sevices.

29 - In accordance with the general policy of decentralization and delegating public affairs to the public, the expansion of welfare services during the Fourth Plan period will be accomplished, under Government supervision and in accordance with established principles, by encouraging investment from the private sector, the social organizations such as the Imperial Social Services Organization, the Red Lion and Sun Society and the Farah Charitable Organization, and local organizations.

30 - Efforts will be made to co-ordinate the social and public welfare activities of the Endowments Organization and the Imperial Iranian Armed Forces with the objectives of the welfare programme under the leadership of the High Council for Social Welfare.

31 - In assigning priorities and allocating funds to various projects, programmes benefiting the greatest number of people and having preventive and constructive value will be emphasized. With regard to programmes concerning the rehabilitation of specific groups consideration will be given to groups who are more capable of returning to active work and of working for the good of themselves and society as a whole over a prolonged period.

32 - Efforts will be made to collect payment appropriate to the family income, in return for services offered, not for any profit-making purposes, but simply to strengthen the sense of responsibility and self-confidence among individuals and families. Free services will be offered only to the aged, young parentless children, the disabled, and those without any income resources at all.

33 - The expansion of welfare services will depend on the availability of technical and specialized personnel, and therefore on-the-job training, as well as the training of new intakes, will be stressed.

34 - Welfare services will gradually and in a coordinated manner be made available at multi-purpose centres. In youth centres, for example, cultural, co-operative, vocational and educational programmes will be arranged, as well as purely sporting activities, and in implementing family welfare programmes, existing counselling centres will be transformed into multi-purpose centres with wider terms of reference. And at social centres in rural areas rural problems will be looked at from a more comprehensive and co-ordinated point of view, and a wider range of services will be made available there.

35 - Government responsibilities of a similar nature must be centralized in a single organization. This will take place at the recommendation to the Government of the High Council for Social Welfare.

36 - During the Fourth Plan period, laws and regulations that are not compatible with the requirements of the age and those arising from the implementation of social development programmes will be revised. Co-ordination between legislative, planning and executive bodies will be achieved through the Legal Committee of the High Council for Social Welfare.

37 - Maximum utilization will be made of private domestic sources and international organizations within the framework of the Plan for the advancement of social services.

Distribution of development credits

38 - The distribution of development credits among various social welfare programmes will be as shown in Table 5.

TABLE 5 — DISTRIBUTION OF DEVELOPMENT CREDITS AMONG VARIOUS SOCIAL WELFARE PROGRAMMES IN THE FOURTH PLAN

Programme title		From development credits	From budgets of executive agencies (estimated)	Private sector (estimated)	Foreign aid (estimated)	Total
1. Social insurance		300	0	50	0	350
2. Family and child welfare		856	306	0	88	1,250
a. family	722					
b. parentless children	134					
3. Sports & youth welfare		2,494	1,000	1,000	0	4,494
a. sports & physical training	1,794					
b. Youth welfare	700					
4. Workers' welfare		235	0	200	0	435
5. Rural welfare		366	166	60	30	622
6. Welfare of specific groups		388	200	300	0	888
7. Education and research		211	50	0	40	301
a. education	171					
b. research	40					
Total		4,850	1,722	1,610	158	8,340

CHAPTER 22

STATISTICS AND SURVEYS

Introduction

1 - Apart from the important role it plays in socio-economic planning and the projection of related variables, statistics is equally significant when it comes to appraising the actual performance of plans and evaluating the progress achieved.

The availability of reliable and adequate statistics also makes a substantial contribution to the adoption of well-conceived decisions and good management at the production and executive level.

Neither is there any doubt as to the necessity of conducting research, which forms the basis for any type of planning and socio-economic decision-making.

For these reasons, Plan Organization has from its inception paid particular attention to statistics and surveys.

The position regarding statistics in the Third Plan

2 - In the Third Plan, a special chapter was alloted to statistics for the purpose of reorganizing the state of statistics in Iran, both by centralizing activities relating to basic statistics in the Iran Statistics Centre, and by co-ordinating statistical organizations in executive agencies. In addition, the Third Plan contained a number of major statistical projects and programmes for execution during the Plan period.

3 - The performance of the Third Plan in the attainment of these targets is as follows:

a. Reorganizing the state of statistics in Iran - Half way through the Third Plan period the Iran Statistics Centre was established in accordance with a special law as an affiliated body of the Plan Organization.

b. The execution of various statistical programmes and projects during the Third Plan period and the results thereof may be summarized as follows:

i. Agricultural statistics. Two statistical projects were approved during the Third Plan period with a view to determining the state of the agricultural sector. One of them was related to current agricultural statistics and the other to agricultural sampling. No practical results were achieved from the two projects, however.

ii. Labour and manpower statistics. In this field, two basic statistical projects were approved. One of them was for the purpose of collecting statistics relating to factories and workshops, and the other was for the purpose of collecting statistics relating to manpower. The first project was implemented in 213 towns throughout the country. In general, surveys on factories and workshops were carried out by census methods in large towns, and sampling methods in small towns. Although the projects were based on proper scientific principles, they were not entirely successful in practice, owing to the lack of a sound supervisory system, and the data collected did not prove adequate for the needs of manpower planning.

iii. Education and health statistics. In order to determine the state of the different levels of education throughout the country and that of public health and of medical care and health activities, two projects were approved. Although the terms of reference of these projects were limited to determining the current operations of the executive agencies in question, it was not possible to evaluate them in detail in the absence of a comprehensive technical project.

iv. Industrial and mining statistics. During the Third Plan period, four projects relating to industry and mining were approved, as follows:

a mining census of Iran; an industrial survey; annual industrial surveys; a directory of industrial activities.

Industrial statistical projects were also carried out, based on careful scientific projects. These proved fruitful in the preparation of the Fourth Plan, since the projects were analysed from an economic point of view.

v. Commercial statistics. In this connection, a project entitled "Survey of Commercial Enterprises" was approved and implemented on a sample basis as an experiment. In general, the technical side of the project has some deficiencies and the results achieved cannot be used to make generalizations for all fields and for the country as a whole.

vi. Population statistics. As regards population statistics, a sample survey was conducted in 1342, but since it was not based on scientific principles, the results obtained are not reliable. Measures were taken to improve the method of obtaining current population statistics.

In connection with population, the most important and fundamental statistical project implemented during the Third Plan period was the population census conducted in 1345. Although the results of this census are gradually being published, a detailed evaluation of the whole census is not possible at this stage as all the data are not yet available.*

Two projects were also approved in order to survey population characteristics, fertility and urban social problems. Owing to their limited scope, however, they will only be mentioned in passing.

As regards the publication of the results achieved by the population sample survey, and of the statistical yearbook and the geographic dictionary, two further projects were approved, which have not yet been fully implemented. However, the Iran Statistics Centre has undertaken the task of publishing the geographic dictionary on the basis of the questionnaires prepared for the general census in population centres and inhabited areas.

vii. Statistical training. For statistical training a project entitled "Establishment of a Statistical Training Centre" was approved, but discontinued after several training courses had been held at the University of Tehran.

At present, an institute has been set up within the Iran Statistics Centre to train enumerators, statistical clerks and specialized statistical staff. During the second half of 1346, a number of 112 high-school graduates began a training course which will qualify them as statistical clerks and 88 university graduates began a training course which will qualify them as statisticians. A number of people have also received on-the-job training.

viii. Other projects. In addition to the activities outlined above, other projects have been approved including projects to prepare a national statistical directory, determine the number of companies dissolved, and identify localities for cadastral surveys. No further discussion will be made of them, however, owing to their lack of importance.

In connection with the national income, rural and urban cost of living and input and output tables, studies have been conducted respectively by the Central Bank, the former Public Statistics Department and the Ministry of Economy. Various public and semi-public agencies have prepared and published statistics relating to their current operations, the details of which have been given in the detailed programme. Reference may be made in this connection to the housing statistics which were collected during the 1345 census.

4 - The Third Plan paid particular attention to scientific and technical research and studies in various fields including irrigation, agriculture, communications, power and industry and a large number of projects were approved and implemented in these fields. In addition, a Ministerial decree relating to the establishment of project and research bureaus in all Ministries and several other public agencies, resulted in substantial contributions from development and current budgets for the mobilization of these bureaus. The most important bureaus to be established from development credits which became powerful research and planning units

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* More than 70 per cent of all the census results have already been processed and it is hoped that processing of the remainder will be completed by the end of the Third Plan period.

were the bureaus of the Ministry of Economy, the Ministry of Education, the Ministry of Agriculture, the Ministry of Health, the Ministry of Interior, the Ministry of Labour and Social Affairs, Tehran Municipality and the University of Tehran. Technical bureaus of Governorate-Generals and Governorates were also reinforced in order to fulfil their numerous functions which included the implementation of studies as required.

PROBLEMS

5 - The statistical problems of the Third Plan may be enumerated as follows:

a. the lack of contact and co-ordination between officials responsible for the collection of statistics within executive agencies and the planning units that are the main users of such statistics;

b. the shortage of specialized and experienced statistical staff and the failure to appoint qualified administrative personnel in the services concerned;

c. the absence of a well-equipped agency to supervise the proper performance of statistical projects;

d. the absence of an operational work schedule for various stages of implementation of statistical projects, such as the stages of preparation of technical projects, collection, processing and publication, which would enable the results of statistics processed to be presented on time and at regular intervals so as to meet the requirements of user agencies and within the framework of previously determined objectives and the absence of statistical records and a sound statistical base in the country.

For all these reasons, the statistics prepared during the Third Plan were in some cases insufficient and in all cases failed to meet the needs of the country's planning and executive agencies.

It must, however, be acknowledged that in terms of quantity and to some extent in terms of quality, considerable progress was achieved in the field of preparing statistics in the Third Plan period as compared with previous periods, and notable success was achieved in particular in the field of statistics on the economy and national income, in comparison with previous Plans.

e. The establishment of the Iran Statistics Centre was envisaged in the Third Plan period in order to solve some of the above problems, particularly those related to organization, definitions and training of personnel. Owing to delays in the enactment of the relative law, however, the Centre was established later than the time expected and from its inception, it was confronted with the important task of the general census of 1345, and was thus unable to carry out other major functions. Neither did the other statistical units envisaged in the Third Plan act exactly according to the Plan. It is nevertheless hoped that the Iran Statistics Centre will be able to carry out these other tasks once the census work has been completed.

GENERAL OBJECTIVES OF FOURTH STATISTICS AND SURVEYS PLAN

6 - The general objectives of the Fourth Statistics and Surveys Plan may be summarized as follows:

a. the preparation of statistics and implementation of statistical surveys capable of meeting the requirements for reliable estimates, calculations and projections in comprehensive socio-economic planning;

b. the submission of statistics and implementation of surveys so as to assist the Government in making important decisions;

c. the preparation of statistics and data required for international scientific comparisons.

EXECUTIVE GUIDELINES AND POLICIES

7 - The executive guidelines and policies of this chapter may be summarized as follows:

a. to revise the present organization and regulations concerning statistics and to create the requisite conditions for the Iran Statistics Centre and other statistical agencies to be able to fulfil their basic functions;

b. to categorize surveys undertaken by the Iran Statistics Centre and those assigned to other agencies;

c. to create a special permanent network for sustained and regular collection of basic statistical data throughout the country;

d. to provide for pre-employment and on-the-job training courses for the country's statistical staff;

e. to strengthen the state of agricultural statistics, which is of paramount importance at this stage of Iran's socio-economic evolution;

f. to establish order and continuity in the preparation and publication of statistics, especially in social affairs and statistics dealing with labour and manpower, and also certain economic statistics related to the annual state of the economy;

g. to give priority in the preparation and publication of statistics, and in carrying out surveys and studies to what is required by the Government in order to take important decisions;

h. to conduct the economic and demographic surveys required for national scientific centres and Plan Organization to be able to determine the trend, nature and extent of social and economic development; (In connection with scientific research policy, reference is made to the Education chapter.)

i. to reinforce the civil registration organization so that births, deaths, marriages and divorces are registered correctly and regularly;

j. to mobilize the organization responsible for estimating manpower requirements and resources;

k. to reinforce the statistical agencies responsible for preparing economic statistics and calculating national product and national income.

DISTRIBUTION OF CREDITS

8 - For the implementation of statistical programmes, within the framework of the general objectives, an allocation of about Rials 700 million will be made from the Fourth Plan Statistics and Surveys Chapter appropriations. Statistics which will be thus provided are the following:

Population statistics (1350 census), transport statistics (1348 and 1349), statistics relating to agricultural and livestock production and production costs at all stages, forestry statistics, pasture land statistics, industrial and mining statistics, commercial statistics (wholesale and retail), statistics relating to private services, current statistics relating to transport and warehousing, profit and non-profit making company statistics, statistics related to rentals, properties, localities, judicial transactions, marriage and divorce; vital statistics (registration of births and deaths), labour manpower and employment statistics, and statistics relating to endowed properties.

In addition to these statistics, other current statistics will also be prepared in the Fourth Plan period, either related to the current functions of statistical units, (the cost to be provided for from the current development budgets or current allocations), or prepared by agencies affiliated to the Government and managed on a commercial basis, by public companies, charitable organizations and public utilities. All of these statistics will be useful in the realization of the general objectives of the Fourth Plan.

It should also be noted that current credits for statistics which have been paid from development funds during the Third Plan, have been transferred to the current budget and will be met from the budget of such transferred credits, which amounts in all to Rials 45 billion or about Rials 963 million for the entire Plan.

9 - Credits amounting to Rials 300 million are envisaged for carrying out studies and research work and for planning purposes during the Fourth Plan.

Total credits for the Statistics and Surveys Chapter will therefore amount to Rials 1 billion. * (See Table 1.)

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* In addition to the above items, it is estimated that during the Fourth Plan, a total amount of Rials 3.9 billion will be spent on studies and research under various Chapters of the Plan. Details of these estimates are given in each Chapter.

TABLE 1 — DISTRIBUTION OF DEVELOPMENT CREDITS FOR STATISTICS & SURVEYS IN THE FOURTH PLAN
(MILLIONS OF RIALS)

Title	Credits Allocated
Statistics	700
Planning and Surveys	300
TOTAL	1,000